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ABSTRACT

The purpose of this document is to inform foreign (i.e., non-Dutch) geographers about Randstad Holland--a term which originated in the 1930's--describes the loose confederation of towns which lie close together in the rough form of a 110 mile wide horseshoe facing the Noordsee in the west of the Netherlands. Because boundaries of the Randstad are not firmly set, no uncontested statistic of its area and population exist. A general estimate is that Randstad contains over 40% of the population and approximately 20% of the land area of the Netherlands. The four largest cities of the Randstad are Amsterdam, Rotterdam, The Hague, and Utrecht. Characteristics which differentiate the Randstad from other European urban areas include that no city can be regarded as the uncontested center of the area, there are no hierarchical relationships among the four largest cities, and Randstad towns and cities are grouped around a rural core. Historically, the Randstad became important after about 1300 when technical developments in civil engineering reduced the danger of regular flooding. Economically, the Randstad has developed rapidly since the 1950's, with the most striking development being the petro-chemical industry. Contemporary planning problems, which are pursued at the regional and national levels, have concentrated on town expansion since the beginning of the 20th century. Major planning objectives are to avoid congestion and an unbalanced urban structure, to retain open spaces, to reduce socio-economic development inequalities within the region, and to reduce inequalities in the availability of social services. The Randstad offers many possibilities for excursions to areas of historical, cultural, agricultural, natural, and industrial interest. Information on a number of these excursions concludes the document. (DB)

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GUIDE TO THE RANDSTAD HOLLAND

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FOREWORD

The Information and Documentation Centre for the Netherlands (IDG), which exists to inform foreign geographers about the Netherlands, deals annually with more than a thousand requests for information, documentation and assistance in the preparation of excursions.

In 1973, the IDG – in collaboration with the Ministry of Foreign Affairs – began to compile geographical guides for those areas for which interest had been frequently expressed. The first guide to be published was that for the Zuyder Zee/Lake IJssel region, followed by a guide for the South-West Netherlands: Rotterdam/Europort/Delta. The Guide to the Randstad Holland is the third in this series of regional publications.

The guides have a two-fold purpose, which is reflected in the division into sections A and B. Section A comprises a geographical description and analysis of the area, while section B gives suggestions for excursions. The booklets are therefore – as will be seen from the length of the general section – not intended exclusively for the use of people preparing or making a visit to the region concerned.

A concise bibliography (see Appendix) and a reference to the available maps of the area (Section B.5.) point the way to further study. Moreover, the IDG is ready at all times to answer your questions.

The IDG wishes to thank the various members of the staff of the Geographical Institute at Utrecht, particularly Messrs. J. G. Borchert and H. F. L. Ottens for their valuable advice.

Any comments or suggestions concerning this guide would be gratefully received.

Utrecht, 1980
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Photo 1 — *City regions in the southern wing of the Randstad Holland; in the foreground part of Rotterdam, behind it Delft and, on the horizon, the Hague agglomeration. The agricultural area on the left above the centre of the photograph is the buffer zone of Midden-Delfland (looking NW).*

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CHAPTER I – INTRODUCTION

1.1. What is the Randstad Holland?

The Randstad Holland is a concept which lacks any official basis. There is no mayor or municipal council of the Randstad, nor is there a body which is explicitly concerned with the physical planning of the Randstad. No-one can say precisely where the boundaries of the Randstad lie and consequently no uncontested statistics of its area and population are to be found.

"Randstad Holland" is generally used as a collective term, originating in the 1930's, for a number of towns lying relatively close together in the west of the Netherlands. The concept is therefore considerably younger than the towns. The latter form roughly a horseshoe with a diameter of from 50 to 60 kilometres. In the intervening "open" area are a number of smaller towns and a great many villages (fig. 1).

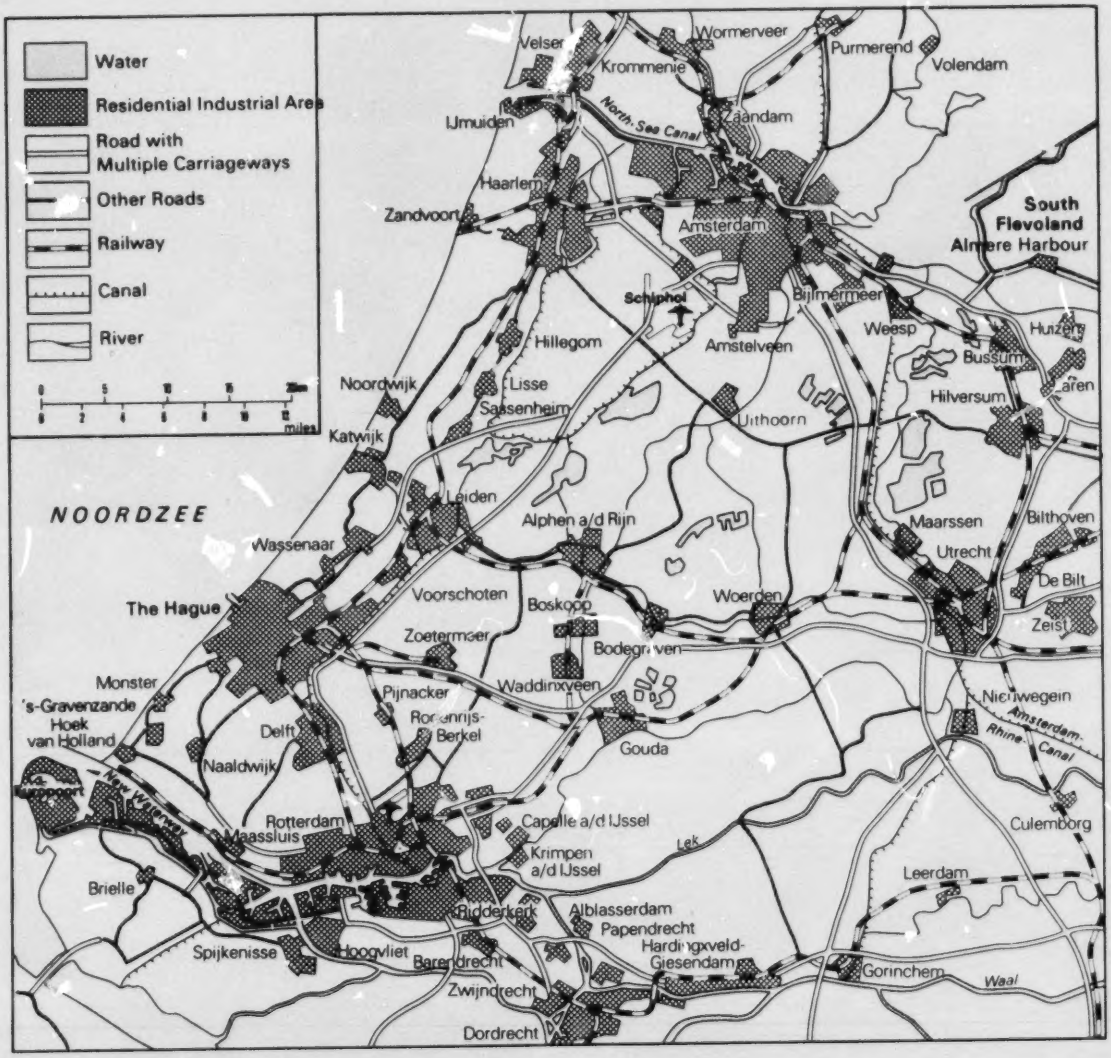

fig. 1. – *Reference map of the Randstad Holland.*

Here the rural character still predominates, with areas used for livestock and arable farming, horticulture and open air recreation.

This is one of the characteristics which gives the Randstad such a completely different aspect from, for example, London or Paris. The urban areas are grouped around a rural core – the "Green Heart" of the Randstad. In recent years an increasing number of researchers is using the term Randstad for more than the ring of towns alone. Because of the growing effect of urban activities on the rural areas (traffic, recreation, suburbanisation) people are beginning to designate the whole region – towns + immediate surroundings + "Green Heart" – as Randstad Holland. Reference is made to the *town planning* and *geographical* concepts of the term Randstad (Van Ginkel, 1979).

A second characteristic is the polynuclear nature of the Randstad. None of the constituent cities can be regarded as the uncontested centre. There are no hierarchical relationships between the four largest cities of Amsterdam, Rotterdam, The Hague and Utrecht. This is related to the diverse functions performed by these cities. Amsterdam is the capital (but *not* the seat of government) and the most important cultural and financial centre; Rotterdam is the largest port (not only of the Netherlands, but of the world). The Hague is the seat of government and Utrecht owes to its central location its function as railway junction, conference and trade fair centre etc.

It is therefore incorrect to conceive of the Randstad as a single city – although the name suggests this. Nor is it conceived as a unity in the perception of its inhabitants. A study by some British geographers (Herbert and Edwards, 1972) showed that the inhabitants felt themselves involved in the first place with their own town or city – each with a marked character of its own. It is rather inhabitants of *other* regions who will experience the Randstad as an entity.

The unique structure described here of a number of centres, each with its own function, grouped around a central open area, is regarded by foreign geographers and planners in particular (see, for example, P. Hall, 1966/1977) as a great advantage. Many problems in the field of traffic and recreation, for example, can be solved more easily in the Randstad than in continuously built up urban areas. That the structure of the Randstad also gives rise to problems will appear from the remainder of this guide.

The Randstad is receiving increasing attention in the geography teaching of other countries, as appears, for example, from the study of secondary school textbooks, where it is treated as an example in chapters about physical planning or urbanisation. The Randstad will also be treated mainly from these standpoints in the present guide. You should not expect in these pages a detailed treatment of such topics as the steel industry in IJmuiden or the petrochemical industry in Europort, dairying or horticulture in the "Green Heart", or the ports of Rotterdam and Amsterdam. Other sources are generally available for these aspects (see list of references on p. 70), although a number of them are touched on in the Excursion section (B).

1.2. The natural framework

The Randstad region forms part of the "Low Netherlands", by which is understood the northern and western half of the Netherlands, an area which in general does not rise more than one metre above sea level. This means that, without the protection of dikes and dunes and without the continual pumping away of excess water, the largest part of this area would be permanently submerged or inundated with great regularity (see, *inter alia*, "Compact Geography of the Netherlands", pp. 6-7). The greater part of the Randstad region did not emerge until during the course of the Holocene, much of it not until the last few centuries. Only a few parts date from the Pleistocene.

This relates particularly to the Utrecht hill ridge in the extreme east of the region, which was pushed up by the continential ice sheets and reaches some 50 to 70 metres above sea level in its highest parts (fig. 2). The dunes along the west coast also reach well above sea level, with "summits" averaging 20 to 30 metres.

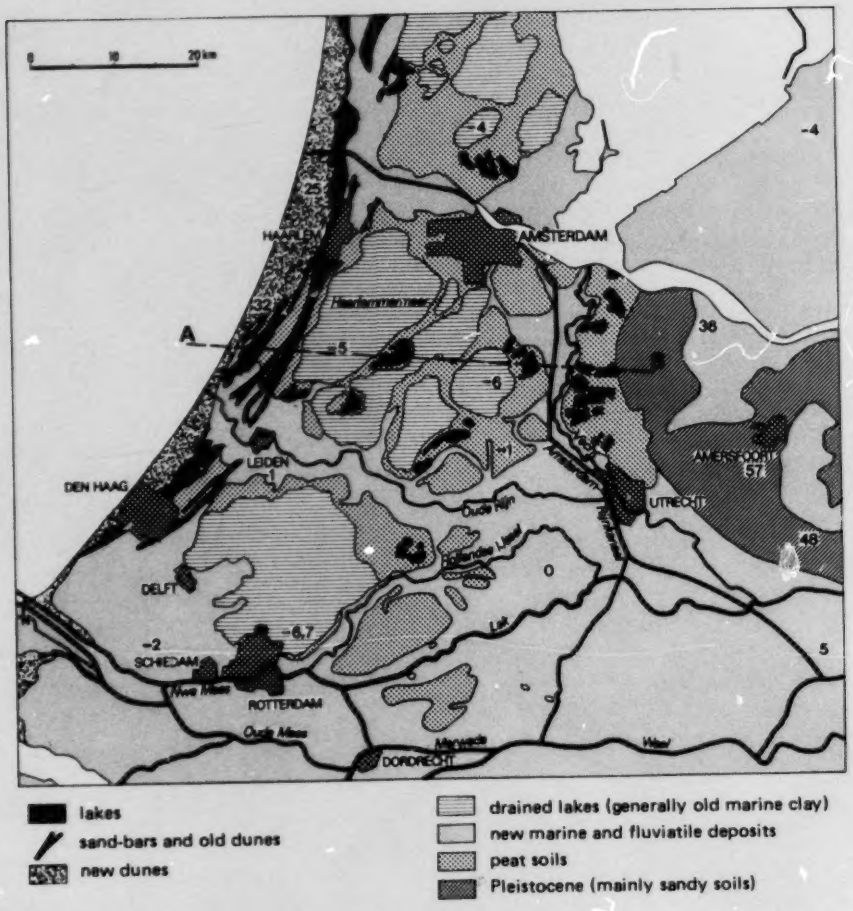

fig. 2. — *Physical geographical structure of the Handstad region.*

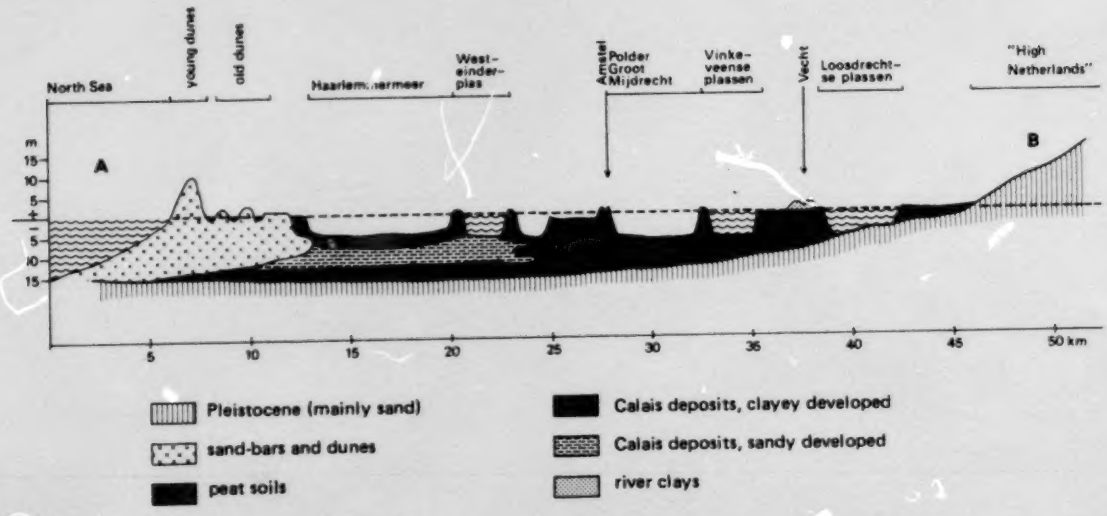

fig. 3. — *Section through the West Netherlands at about 52° 15' N.lat.*

The cross-section (fig. 3) shows the Pleistocene sandlands of the High Netherlands at the extreme right; on the left, along the coast, are first the new dunes (originating from c.1000 A.D.) with, behind and partly under them, the old dunes, dating from about the beginning of the Christian era. Between these two margins with their higher elevation is situated the Holland-Utrecht polderland (the name "Holland" relates only to the provinces of North and South Holland and not to the whole of the Netherlands).
The elevation of the polderland relative to sea level varies from about + 1 metre to below –6 metres.

The Pleistocene basement of the polderland consists largely of aeolian cover sands, deposited during the last (Würm) glaciation. During that period the ice did not reach the central Netherlands and the wind had free play in the treeless tundra. These sandy layers form the firm foundation for the piles – formerly of timber, currently of concrete – on which all the buildings of the Low Netherlands rest.

After the last glaciation the temperature rose and trees appeared, beginning with birches and conifers, with broad-leafed trees coming in later. At the same time the sea level rose, so that what is now the "Low Netherlands" became a marshy area. This resulted in the formation of a thin layer of peat (fig. 3).

As the transgression continued the area disappeared completely under water. The sea deposited thick layers of clay, known as the Calais deposits. Depending upon the circumstances this "old marine clay" sometimes had a more sandy, sometimes a more clayey character.

As a result both of the decline in the rate of the relative rise in sea level *) and the protection of the old dunes, which had formed in the meantime, the lagoon began to silt up again somewhat. Peat again began to form from the partial decay of the vegetation of these marshy areas, but now in layers which reached in many places a thickness of some five to ten metres. When man began to inhabit these marshy areas, he was forced to take measures to combat the excess of water. From these developed the "polders", areas surrounded by a dike and within which the water level can be controlled. At first this was accomplished with windmills, later with steam pumps and, in the present century, with diesel and electric pumps.
The pumping lowered the groundwater level, with the result that the peat soils often shrivelled and subsided by several metres.

From the Middle Ages until well into the 19th century man has dug the peat away in many places, mainly for use as fuel in its dried form. This led to the formation of a large number of lakes, which often became very extensive as a result of erosion during storms. Particularly where the floor of these lakes consisted of "old marine clay" – which is very suitable for arable farming – they were later drained with the help of windmills (17th and 18th centuries) or steam pumps (19th century). These often very deep polders are called "droogmakerijen". In other places, mainly where the subsoil is sandy, the lakes continue to exist (to the great joy of the 20th century water-sports enthusiasts!).

A third group of deposits in this region is of fluviatile origin. Strips with deposits of fluviatile sand and clay are to be found not only along the great rivers – Rhine/Lek, Waal and Meuse –, but also along smaller streams, like the Old Rhine, which had a much greater flow in the past.

This digression into physical geography will help to elucidate some of the underlying structure of the Randstad region. We would mention, *inter alia,* the following points:

- because the greater part of the region was for a long time an inaccessible swamp, the rise of towns began relatively late. For a long time Utrecht – a Roman settlement in origin – was the most westerly situated town in the Central Netherlands (see also Section I.3.).
- the occurrence of relatively higher ground in the west (dunes), the east (Pleistocene sandlands) and along the rivers (levees) explains in the first instance the development of the ring-shaped series of towns.
- the presence of completely different types of polders largely explains the diversity of agricultural land use. The groundwater level, in particular, is of great importance. In the generally old peat polders, lying no more than 1 to 2 metres below sea level, it is usually less easy to regulate the groundwater level than in the considerably deeper, but newer, drained lakes. The result is an often sharp transition from arable land in the drained lakes to grassland in the surrounding peat polders (on this aspect see, for example, IDG Bulletin, 1978-79, section A.1.b.).

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*) The rate at which sea level is rising relative to the land (caused by rise of sea level + sinking of the land) has undergone marked fluctuations since the end of the Ice Age. A rate of 10 to 15 cm. per century has been calculated for the Low Netherlands since c.1750.

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Photo II – *"Stage set landscape" in the Green Heart of the Randstad. In the centre the little river de Meye (between Alphen aan de Rijn and Woerden); top left, part of the Nieuwkoop lakes.*

1.3. History to c.1950

As described above, up to the Middle Ages there were important towns only in the eastern half of the Netherlands, usually along navigable waterways: Maastricht, Nijmegen, Tiel, Utrecht, Deventer, Groningen etc. In the west there was only some settlement along the River Vecht, at the foot of the dunes and at the mouth of the Old Rhine.
In about 1100 the gradual reclamation of the "peat wilderness' began from out of these areas.

From about 1300 two developments facilitated the rise of towns in the west:

- technical developments in civil engineering reduced the danger of regular flooding (dike construction);
- about this time a well used inland waterway from south to north through what is now the Randstad region (via Dordrecht – Gouda – Haarlemmermeer) came into use. Along this route developed a number of trading towns.

This course of events acquired a new dimension when, a little later, shipping became more important on the "outer waters" (North Sea, Zuyder Zee). Various towns situated where a river debauches into the "outer water" expanded rapidly. This was particularly the case where a dam was constructed in the mouth of a river to protect areas lying upstream against flooding.

Since ships could not pass such a dam – there were as yet no locks – transhipment gave rise to much activity in its vicinity. Cities like Rotter*dam* and Amster*dam* owe the beginning of their commercial and port activities to dams of this kind.

The towns which now developed in the west also exerted an influence on the rural hinterland in at least two ways. In the first place, the Counts of Holland and Bishops of Utrecht made grants of areas of land for reclamation. These areas usually had a regular form ("copen"): pieces of land with a parcel depth of about 1250 metres, reclaimed from farmsteads situated along a drainage canal or dike. In this way arose the ribbon development of strip villages, often kilometres in length. Secondly, the removal of peat was begun to supply the rapidly growing fuel requirements of the towns (on this aspect, see p. 10).

During the 16th century the growth of towns received some new impulses. In order to protect urban industry against the competition of the small industries which had arisen all over the countryside (such as textiles and brewing), the establishment of such industries outside the towns was forbidden in 1531. Many people who could no longer make a living in the countryside now migrated to the towns. Moreover, at the end of the 16th century, many immigrants – driven, for example, from the Southern Netherlands – arrived in the towns of Holland and Utrecht. Consequently, by about 1600, more than half of the population of "Holland" already lived in towns (De Vooys, 1953).

After this a period of great prosperity began – the "Golden Age" – which was mainly the result of the rapidly expanding trade with overseas territories (1602: establishment of the United East India Company). The ports from which the sailing ships left for the East and West Indies became very prosperous. They owed their prosperity not only to commerce, but to the industrial processing of the imported raw materials.

Photo III – *The port of Amsterdam in its full glory in the seventeenth century.*

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The towns soon reached a size which was exceptional for that time (table 1).

It is remarkable to what a high level the power and particularly, the independence of the towns developed at this time. As late as 1785 the British geographer Salmon *) could still write about this.

Table 1. – Population in 1632	x 1000
Amsterdam	120
Leiden	44
Haarlem	37
Utrecht	35
Rotterdam	30
Delft	24
Dordrecht	20

Source: Borchert and Van Ginkel, 1979.

"The seven provinces (.....) are various in extent, unequal in force, and often divided in interest; each contains many towns or cities, every one of which being governed by its own laws and its own magistrates is no less independent of the rest of the provinces, than the province is of the other States. Supreme authority resides in every part, and common interest is the only bond of union.
(.....) The majority (of the Assembly of the States-General) decides, but only in common matters. Affairs of importance, such as war, taxes, navigation, the regulation of the colonies, & c. are referred to each of the provinces; and although each of them has its own states, these cannot give their final consent till they have procured the suffrages of every one of the voting towns. (.....).
It sometimes happens, that the refusal of one small town stops a resolution (.....)."

There were even the beginnings of suburbanisation and commuting: well-to-do merchants from the towns built themselves handsome country houses along the Vecht or at the foot of the dunes.

During the second half of the 17th century stagnation set in and this decline lasted until after the Napoleonic period, i.e. up to the beginning of the 18th century. One of the causes was that other countries began to protect their own economies from foreign competition with increasingly drastic measures.

During the 19th century Western Europe was the scene of the rapidly spreading industrial revolution in which the Netherlands certainly did not play a leading part, mainly because it did not possess its own coal and iron ore reserves. In the second half of the century, however, partly because of the construction of railways (from 1839) and a number of new canals, the towns were caught up increasingly in the industrial development (fig. 4). Better waterway connections with the sea for Rotterdam and Amsterdam – the New Waterway in 1872 and the North Sea Canal in 1876, respectively – gave these cities an important stimulus.
Traffic and commerce evidently continued to play an important part! The agricultural crisis during the last decades of the 19th century caused many people to migrate from the countryside to the towns and particularly to those in the Randstad.

This period was almost a black page in town planning history. Around the old city centres arose drab residential areas for port and industrial workers: narrow streets with multi-storey houses into which light and air scarcely penetrated. These neighbourhoods, in particular are now the scene of drastic redevelopment and urban renewal measures.

After about 1920 the increasing use of electricity and the motor car made possible the greater dispersal of industrial activities; nevertheless, the major (port) cities continued to form the main concentration points. In 1918, for example, the first (and only) Dutch iron and steelworks was established at the seaward entrance to the North Sea Canal. Economic development stagnated, however – as in the whole of the Western world – between 1930 and 1945.

The cities of the Randstad suffered heavily during the Second World War. At the very beginning of the war the entire centre of Rotterdam was destroyed by bombing. During the war Amsterdam suffered particularly from the loss of the greater part of its Jewish population.

*) Salmon – Geographical and Astronomical Grammar, London, 1785.

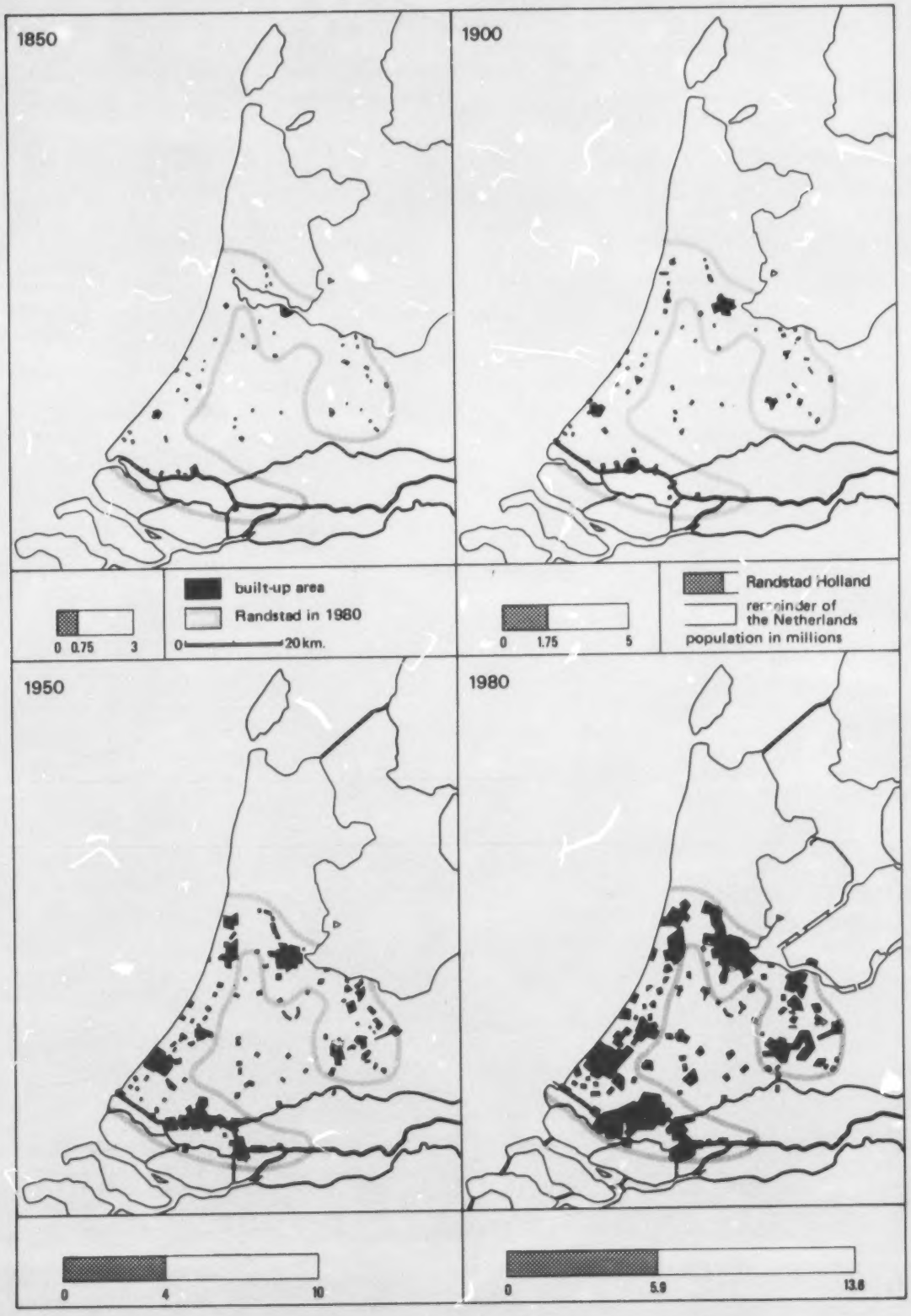

fig. 4. – *The development of the Randstad Holland since 1850.*

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The warlike operations towards the end of the war caused, among other things, great damage to the docks and the western side of Rotterdam and to one of the central districts of The Hague while a large part of the railway network was destroyed or carried off. One of the visible effects of all this is the completely different character of the present-day central areas of Amsterdam and Rotterdam (see, for example, IDG Pictorial Atlas of the Netherlands pp. 32-33).

The first years after the war were characterised by a rapid reconstruction with the following as the most important spatial elements:

- restoration of the railway network, including a number of destroyed bridges;
- the beginnings of the execution of a rebuilding plan for the centre of Rotterdam, which partly had already been drawn up during the war;
- restoration and expansion of the Rotterdam docks.

The population grew very rapidly during this period (the post-war "bulge" in the birthrate).

CHAPTER 2 – DEVELOPMENTS SINCE 1950

2.1. Socio-economic development

After the first phase of recovery the Netherlands, and particularly the Randstad region, was caught up in a wave of economic development.

Table 2 – Import and export of goods, in millions of tons, 1977.

Rotterdam/Europort	279,9
Kobe	143,0
Yokohama	117,0
New York	115,0
Marseilles	99,7
Le Havre	80,0
Antwerp	70,0
Singapore	64,1
Hamburg	53,2
London	51,0
Genoa	50,5
Amsterdam/IJmond	27,9

The transit of goods to Germany, which was also recovering rapidly, resulted in a tempestuous growth of the ports, particularly Rotterdam, and – thanks to the opening in 1952 of the Amsterdam-Rhine Canal – to a lesser extent, Amsterdam. The volume of cargo loaded and discharged in the port of Rotterdam far exceeds that of other world ports and is ten times as great as that of Amsterdam (table 2).

Photo IV – Part of the port of Rotterdam. In the foreground the Botlek basins (looking upstream) with, left the New Meuse (Nieuwe Maas).

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Industry developed equally rapidly, the most striking example being the petro-chemical activity along the New Waterway, where advantage is being taken, through the rapid adaptation of docks and waterways, of the "rush to the coast" by basic industry. Petroleum accounts for no less than 63% of the goods landed and discharged in Rotterdam/Europort (1977):

Table 3 – Rotterdam/Europort, International goods transport, 1977 x 1000 tons

Petroleum	175,781
ores	30,863
chemical products	9,988
animal foodstuffs	9,936
coal	8,217
cereals	7,483
other products	37,673
total	279,941

Efforts were made to make good the backlog in housing construction (wartime destruction and no new building, followed by rapid post-war population growth). Unfortunately, the emphasis was placed for a long time more on quantity than on quality.
Increased prosperity led to a rapid growth in road traffic and open air recreation.

The energy crisis and a less flourishing economic situation after 1970 slowed down the rate of industrial growth, although the services sector continued to develop further. As a result, more than in many other urban regions, the services sector began to predominate in the Randstad. In the Netherlands in 1976, 60% of the occupied population was employed in the services sector, while for the Randstad the proportion was 67%. Apart from *local services* – which are present in every urban region in the world – this employment is mainly in the *basic* activities of the services sector (services, the range of which extends far beyond the limits of the Randstad region). Examples would be (Borchert *et al.*, 1978):

- port-related services (e.g. import/export concerns)
- services related to industry (e.g. research laboratories)
- metropolitan services (e.g. banks and advertising agencies, head offices of national and international concerns)
- visitor – oriented services (e.g. hotels, conference centres).

Lastly, agriculture also gives rise directly and indirectly to economic activity in the Randstad region.
Thanks, among other things, to the presence of towns (market) and favourable export possibilities, agriculture in the west of the Netherlands shows a strong specialisation in intensive dairy farming and, particularly, in horticulture whether or not under glass. 25% of the persons engaged in agriculture in the Netherlands work in the western Netherlands, but they are responsible for 39% by value of the national agricultural production (Ottens, 1976).

Table 4 shows for the last three censuses the breakdown of the occupied population over the three sectors of the economy in the three western provinces, compared with the figures for the Netherlands as a whole:

Table 4 – Breakdown of the occupied population in %

	Western Netherlands			Netherlands		
Census	I	II	III	I	II	III
1947	11,0	37,8	51,2	18,9	37,9	43,2
1960	6,5	38,0	55,5	10,6	42,2	47,2
1971	3,9	32,6	63,5	6,2	38,7	55,1

The figures strengthen the impression that the Western Netherlands is in advance of the country as a whole in the development towards a post-industrial "services society". Thus the figures for the whole country in 1971 run almost parallel with those for the Western Netherlands in 1960.

II.2. – Population

II.2.1. The west as a whole

On 1st January 1979 the population of the three western provinces – North Holland, South Holland and Utrecht – accounted for 44.7% of the total population of the country. The area of this part of the country is 20.4% of the whole. The population density – 905 per km^2 – is consequently more than double the national average (412).

Table 5 – Area and population of the western Netherlands and the Netherlands as a whole.

	land area km2 *)	population x 1,000	population per km2 of land
	1-1-1979	1-1-1979	1-1-1979
Utrecht	1332	886	665
North Holland	2667	2299	862
South Holland	2907	3064	1054
Western Netherlands	**6906**	**6249**	**905**
NETHERLANDS **)	33913	13986	412

*) area excl. waters wider than 6 metres.
**) population of the Netherlands inc. persons with no fixed abode entered in the Central Population Register.
Source: CBS.

This situation has arisen during the course of time mainly as a result of migration flows. We saw in the previous section how, since the end of the Middle Ages, the towns of the western Netherlands developed rapidly, mainly through commerce and shipping. The prosperity of the towns attracted the rural population, which often found only a scanty livelihood in agriculture. At the end of the last century, in particular, the combination of industrialisation and agricultural depression precipitated a veritable rural exodus, mainly directly towards the cities of the west.
Although after about 1910 the concentration in the west slowed down somewhat, the process nevertheless continued until, in 1940, about half of the Dutch population lived in the three western provinces.

Thereafter, the share of the west in the total population gradually decreased, for a number of reasons:

- in the urbanised west the birth-rate was for a long time lower than in various more rural areas (principally the predominantly Roman Catholic provinces of North Brabant and Limburg); this meant that the population aged more quickly, so that the death-rate was also higher;
- economic activities were more evenly distributed over the country, as a result, among other things of the use of electrical power in industry,
- after 1961 the west began to lose population through internal migration (although until 1971 this was more than compensated by a gain from overseas migration).

Despite this gradual reduction of the west's *share* in the total national population, the *absolute* population continued to increase (see the last column of Table 6, below):

Table 6 – Annual population changes in the western Netherlands.

	Natural Increase	migration changes			Population *) increase
		Internal	Overseas	Total	
1951-55	62.400	8.900	– 13.050	– 4.150	58.250
1956-60	62.500	5.650	– 5.850	– 200	62.300
1961-65	63.350	– 6.000	6.050	50	63.400
1966-70	53.100	– 8.600	8.600	0	53.100
1971	45.500	– 19.900	20.600	700	46.200
1972	37.700	– 22.700	12.200	– 10.500	27.200
1973	30.700	– 32.500	12.600	– 19.900	10.800
1974	27.700	– 32.000	22.600	– 9.400	18.300
1975	22.000	– 25.100	49.700	24.600	46.600
1976	21.200	– 23.100	14.500	– 8.600	12.600
1977	22.600	– 27.300	15.100	– 12.200	8.500
1978	22.100	– 22.300	18.700	– 3.600	17.800

*) Allowing for administrative corrections.
Source: Borchert, 1978 (after C.B.S.).

Natural change

In a period of nearly 30 years the annual natural increase (in absolute figures) in the west of the country has declined by some two thirds. This trend runs generally parallel with that for the country as a whole, although because of the ageing already referred to, the birth-rate is somewhat lower and the death rate somewhat higher than the national averages.

Table 7 – Natural population change in the western Netherlands and the Netherlands as a whole in %

	Western Netherlands			Netherlands		
	birth rate	death rate	natural change	birth rate	death rate	natural change
1960-64	19	8	11	21	8	13
1974-77	12	9	3	13	8	5

Source: Van Ginkel, 1979 (after C.B.S.).

Migration

Inter-regional migration relative to the western Netherlands shows a marked change after 1960. Up to and including that year the three western provinces experienced a migration gain, although it was steadily declining. In 1961 there was a migration loss for the first time, mainly because of migration to the East and South. This may be seen partly as an expansion of the Randstad towards the East (Arnhem etc.) and South (Breda etc.). The migration loss is incidentally wholly confined to the provinces of North and South Holland; the province of Utrecht still experiences a migration gain.

The remarkable fact is that foreign migration shows exactly the opposite picture: up to and including 1960 there was a migration loss, mainly as a result of largescale migration during the 1950's to such countries as Canada, the United States, Australia and New Zealand.
Overseas migration loss reached its maximum for the West of 25,000 persons in 1952. Here, too, a change occurred in 1961 when, as a result of the decline of emigration and a growing immigration of foreign workers (mainly from the Mediterranean countries), there was a foreign migration gain. During the 1970's this was strengthened by immigrants from Surinam, reaching a peak in 1975, shortly before that country became independent in November of that year. In fig. 5. the opposing patterns of internal and foreign migration in the years before and after 1960 are clearly apparent.

It is a coincidence that both during the second half of the 1950's and during the 1960's the internal and foreign migration gains and losses for the three western provinces more or less cancelled each other out (see Table 6, p. 18). This means that the population increase is roughly equal to the natural increase.

Table 8 – Population increase from 1 Jan 1974 to 1 Jan 1979 in %

North	4,8
East *)	6,0
West	1,6
South West	6,5
South	5,0
Netherlands	3,7

*) inc. East and South Flevoland.
Source: IDG Bulletin 1978-79 (after C.B.S.).

A change set in from 1972. Apart from the exceptional year of 1975 (the immigration from Surinam) the internal migration losses from the West considerably exceed the foreign migration gain. Moreover, the internal migration losses exceed the natural population increase. In other words, it is only because of immigration that the population of the West is not yet declining, although its rate of growth is considerably lower than that of the other regions and of the country as a whole:

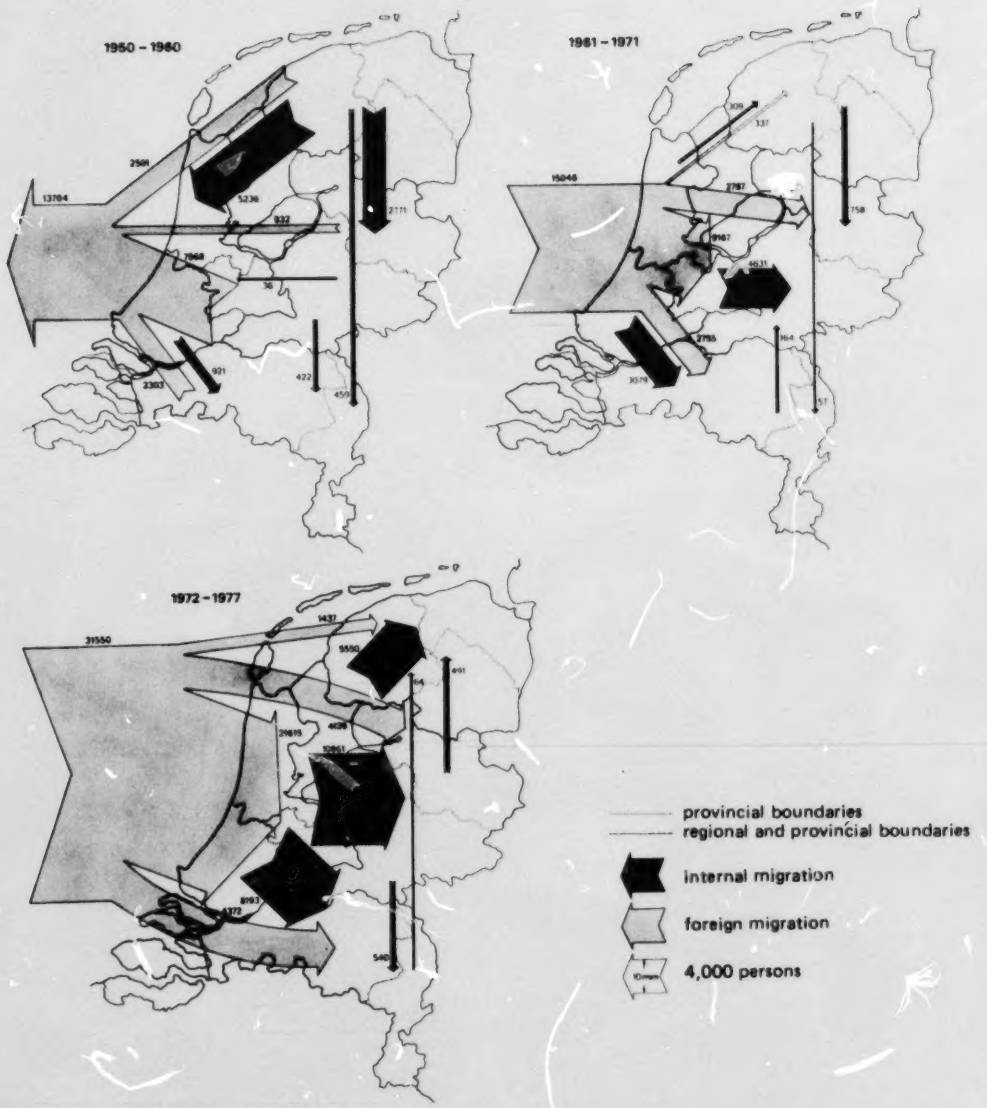

fig. 5. — *Annual averages of internal and foreign migration, by region.*

2.2.2. The situation within the Randstad.

Besides the population trends in the western Netherlands as a whole, described above, it is useful to consider the situation within the Randstad in greater detail. For this purpose the Randstad will be divided into zones defined mainly on the basis of population density and degree of urbanisation. This division (fig. 6) was worked out in the Geographical Institute at Utrecht (Van Ginkel and Ottens, 1972) and is based on the Economic Geographic regions, of which the Central Bureau for Statistics (CBS) has defined 129 in the Netherlands.

The Randstad is conceived as the totality of the urban ring, together with the bordering rural areas on the outer side (the *"outer area"*) and the green heart within the urban ring (the *"central area"*). Because the influence of the urban ring is not uniform all over the central area, the latter is further divided into a *fringe area* bordering on the urban ring and a *core area* where the influence of the large cities is less. This is particularly true of the southern part of the core area, where the rural character is still best preserved and the population density is lowest (table 9).

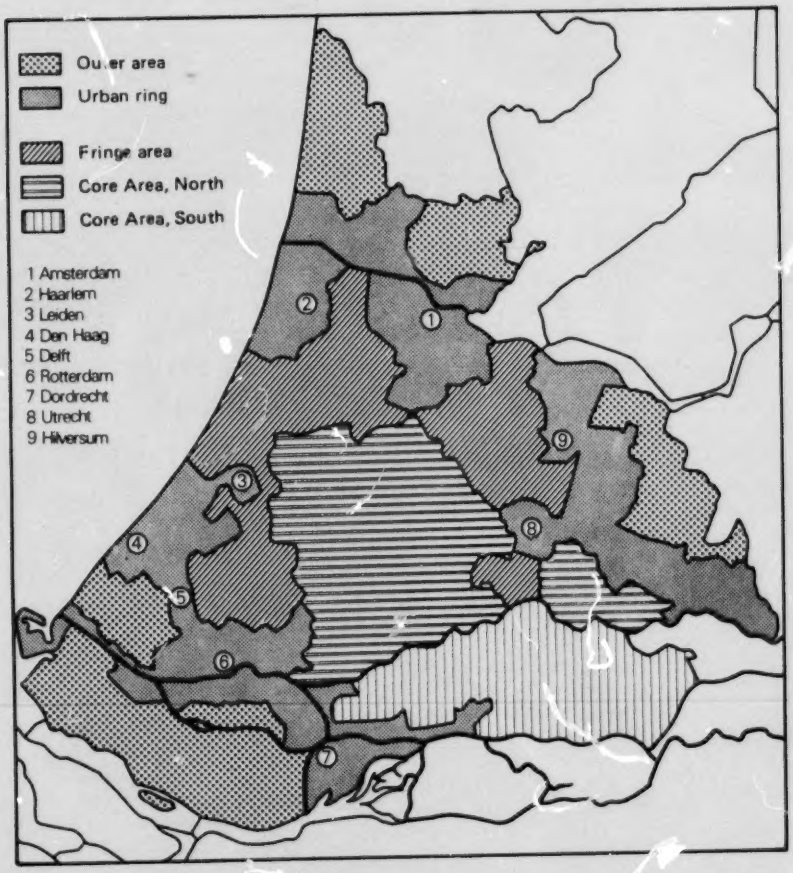

fig. 6. — *Limits and divisions of the Randstad Holland.*

Table 9 — Land area, population and population density of the Randstad and its subdivisions in comparison with the Netherlands as a whole, at 1 Jan 1978.

	Land area in km^2	Population x 1,000	Population density in persons per km^2
Urban Ring	1.736	3.970	2.287
– Urban ring North	1.040	1.984	1.908
– Urban ring South	696	1.986	2.855
Outer area	1.293	745	576
Central Area	2.609	1.202	461
– Fringe Area	929	610	656
– Core Area North	1.021	423	414
– Core Area South	659	169	256
Randstad	5.638	5.916	1.049
Netherlands	33.811	13.898	411

Source: Van Ginkel, 1979 (after C.B.S.).

Defined on the basis of these data the Randstad as a whole covers 16.7% of the total area of the Netherlands, while 42.6% of the total national population lives there. The percentages for the urban ring are 5.1 and 28.6, respectively.

The migration figures present a greatly varied picture for the different zones of the Randstad distinguished above. In the period between 1960 and 1978 the population of the towns (particularly the four largest ones) fell considerably, in contrast to a rapid population increase in the central area.

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Table 10 – Population changes in the towns and central area of the Randstad.

	Population x 1,000		Increase %	Share of the population of the West, in %	
	1-1-1960	1-1-1978		1960	1978
9 Randstad towns	2993	2571	– 14,1	55	41
– of which the 4 largest	2460	2025	– 17,7	45	32
Central Area	704	1132	60,8	13	18

Source: Van Ginkel (1979).

Table 11 – Population of the towns in the Randstad.

Population x 1,000	1-1-1969	1-1-1979	increase %
Amsterdam	845,8	718,6	– 15,0
Rotterdam	699,2	582,4	– 16,7
The Hague	563,6	458,2	– 18,7
Utrecht	276,3	236,1	– 14,5
Haarlem	172,9	159,7	– 7,6
Dordrecht	97,0	106,1	+ 9,4
Leiden	102,5	102,7	+ 0,2
Hilversum	100,4	93,4	– 7,0
Delft	81,6	83,7	+ 2,6

Source: C.B.S.

The population decrease is relatively the greatest in the four largest towns (table 11) despite the fact that that is where the majority of foreign migrants have settled.

Suburbanisation

The decline of population in the towns and the large increase in the central area – which took place largely in the medium-sized and small centres of that area – are features of the process know as suburbanisation.

Both push factors in the towns and pull factors in the rural area are operative. In the towns, for example, many people – particularly young families – find the living climate increasingly unattractive.

Table 12 – Average dwelling occupancy.

	1960	1975
Amsterdam	3,39	2,56
Rotterdam	3,62	2,59
The Hague	3,61	2,67
Utrecht	3,97	3,13
Netherlands	4,05	3,15

Source: Borchert, 1978 (after Suburbanisation Report).

Increasing prosperity (car ownership) provides the opportunity for living more pleasantly and cheaply "out of town", preferably in a single family house with a garden.

A further point is that the average dwelling occupancy in the towns has declined greatly as a result of the reduction in family size and the building of dwellings for single person households (table 12).

Moreover, where new dwellings are built, the number of dwellings per hectare is generally lower than before, while in redevelopment areas dwellings are generally replaced by other forms of land use, such as shops, offices, traffic and parking spaces. All of these phenomena together result in a considerably *reduction of the capacity* of the City centres.

Other factors which have contributed to the great extent of the suburbanisation include the small-scale character of the Randstad complex and the centrality itself of the open central area (Ottens, 1976). The combination of these aspects means, for example, that from almost any site within the central area at least two of the four major cities can be reached by car within 45 minutes (traffic jams permitting!) and by public transport within an hour. This makes it possible not only to combine working in the town with living in the central area, but to combine other advantages of town (good facilities) and country ("rural living", less environmental pollution).

Table 13 – Population (x 1,000) of the Fringe and Core areas and increase 1960-1978.

	1-1-1960	1-1-1978	Change in %
Fringe area	365	610	67,1
Core area	340	523	53,8

Source: after Van Ginkel, 1979.

It appears that those who move out of the towns settle mainly in the fringe area: the population increase is greater there than in the core area (table 13).

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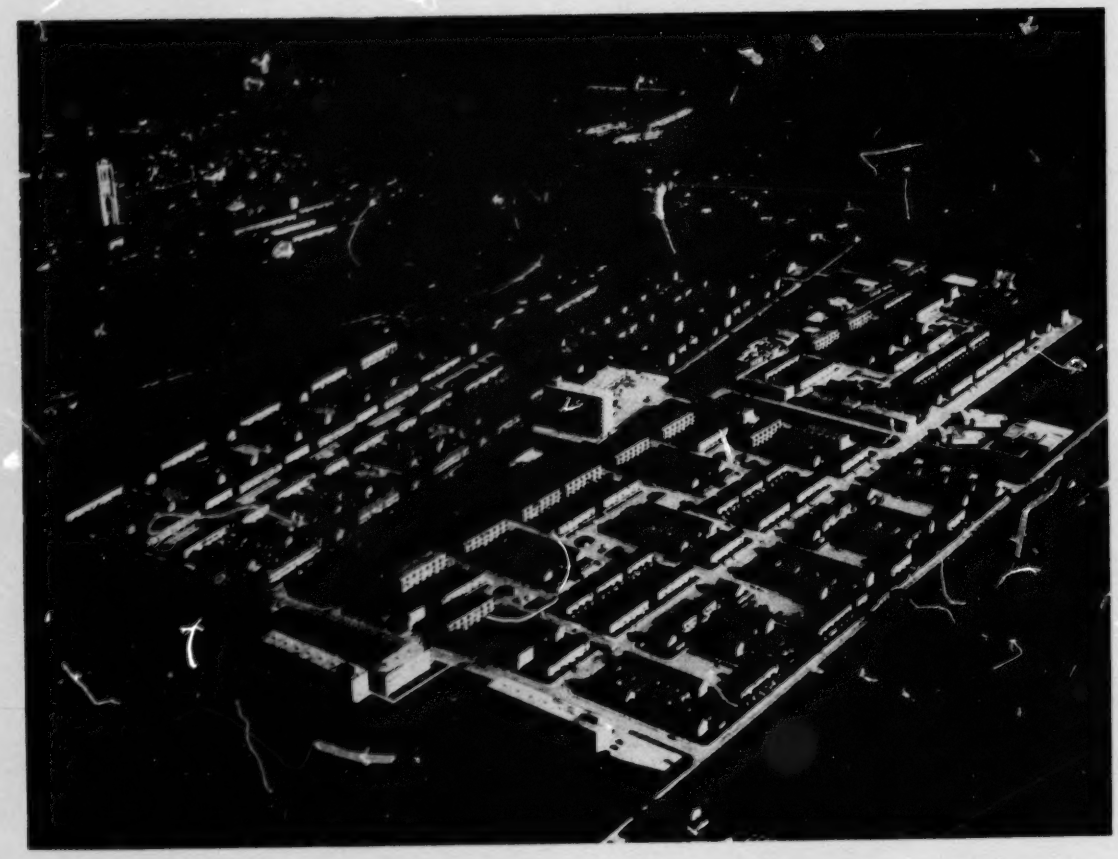

Photo V – *Suburbanisation: new residential estate outside the old fortifications of the little town of Brielle (W. of Rotterdam).*

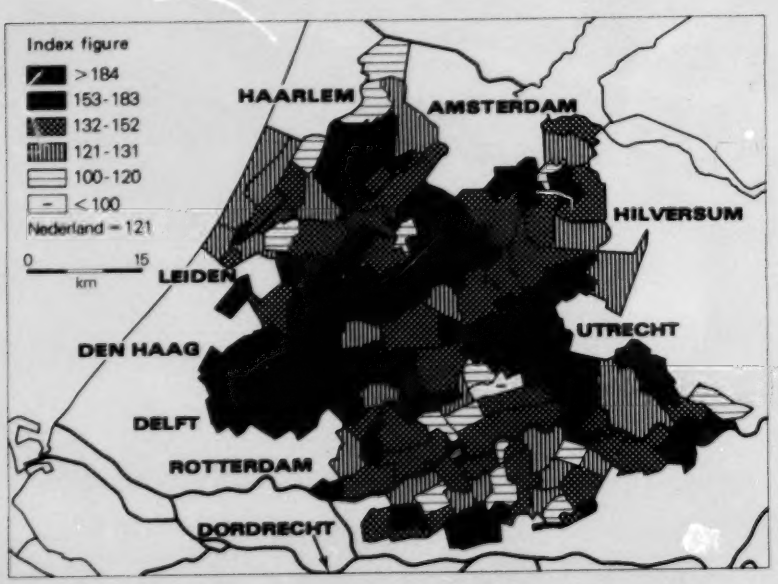

fig. 7. – *Population growth of the Central Area of the Randstad, 1960-1976 (1960 = 100).*

This situation is illustrated in fig. 7. Four areas can be distinguished in which a particularly rapid growth is taking place:

- the Haarlemmermeer
- the area along the Old Rhine, with Alphen aan de Rijn as the most important centre.
- the area east of The Hague, with Zoetermeer as nucleus.
- the area around Utrecht, with Nieuwegein and Maarssen as nuclei.

(The two latter areas have extensions into the core area).

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The population decrease in the towns and the growth in the rural areas has also been aided by the phenomenon of "rurbanisation". This relates to people for whom there are no (longer any) jobs in the small centres of the rural area and who therefore have to look for work in the towns.
Previously this would have led to migration to the towns (and therefore to population increase or a less rapid decrease in the towns), but increased mobility now enables people to continue living in the villages and commute to jobs in the towns. This is sometimes referred to as *migration-substituting autochthonous commuting* in contrast to the situation of the town dwellers who go to live in the country. These are described as *allochthonous commuters.*

A few marked phases can be distinguished in the suburbanisation process in the Randstad. The figures show that, during the period 1970-74, migration from the major cities and settlement in the central area reached their peak. Since then the movement has slowed down somewhat and suburbanisation has become concentrated in a smaller number of centres of larger extent. They are generally places enjoying good accessibility within the traffic network of the Randstad, or they have been designated by the government to accommodate growth.

The central area nevertheless continues to display a relatively rapid population growth in contrast to the still declining major cities. A considerable part of the reason for this lies in the great differences in the birth and death rates resulting from the divergent population composition (table 13). The towns contain a relatively old population and many single person households, the central area contains many young families.

Table 14 – Population change in the 9 Randstad towns and the central area, 1974-77, in %

	Births	Deaths	Natural change	Immi-grants	Emi-grants	Migration change	Total Change
9 Ranstad towns	10	11	– 1	46	58	– 12	– 13
Central area	16	6	+ 10	68	55	+ 3	+ 23

Source: Van Ginkel, 1979 (after C.B.S.).

"Suburbanisation of employment".

Economic activity has also been showing suburbanisation phenomena for many years. Traffic congestion, lack of possibilities for expansion and high land prices are some of the factors which have caused many firms and organisations in the secondary and tertiary sectors to look out for a site outside the urban ring.

The hope that this would render a considerable part of the commuting unnecessary proved vain. Instead a situation arose in which commuting flows developed in two directions: on the one hand, of people who have gone to live in the central area and work in the towns and, on the other hand, of people who live in the towns and travel to their work places which have meanwhile moved into the central area.

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CHAPTER 3 – CONTEMPORARY PLANNING PROBLEMS

3.1. Introduction: organisation of Physical Planning *)

Development

In a densely populated country like the Netherlands the careful drawing up and implementation of plans for the future spatial organisation of the country is an obvious necessity. The legislation framework for this is contained in the Physical Planning Act of 1965, which became law after a long period of gestation, beginning with the Housing Act of 1901. Recent developments have prompted the preparation of further legislative measures.

The following are some aspects of postwar developments:

- physical planning acquired a more scientific basis in the development of "planologie" (planning science), which may now be studied at seven Dutch universities and institutions of higher education.
- apart from planning in urban areas, there also arose an interest in physical planning in rural areas.
- planning has undergone an enlargement of scale: physical planning should be practised not only from the standpoint of local attitudes and interests, but also at the regional, national and international levels.
- the stage of laying down a physical structure for a particular point of time in the future has been replaced by an attempt to achieve a more flexible response to constantly changing developments, this is called "process planning".

Organisation

The organisation of physical planning in the Netherlands, as laid down in the Act of 1965, is based on the three existing levels of government: central, provincial and municipal.
The *central* government sets out the main lines of physical planning policy in reports and structure schemes. It also exercises supervision over the policies of the lower tier authorities and settles differences between them.
The *provinces* may draw up sub-regional plans for parts of their territory and they exercise supervision over the policies of the municipalities.
The Act of 1965 assigns a very important task to the *municipalities*. In addition to the structure plans for the whole of their territory, they draw up development plans. The present organisational structure of physical planning places great emphasis on these development plans.

In what respects does the development plan differ from all the other kinds of plan referred to?

- the municipality is *obliged* to prepare development plans for its undeveloped areas and such a plan is sometimes also drawn up for other areas, such as a town centre which is to be rehabilitated.
- once accepted by the municipal council and approved by the province, the provisions of the development plan are *legally binding* for everyone. Building licences are issued only if they are in conformity with the development plan. Failure to conform to the plan results in an appearance before the magistrate, while any structures are demolished at the offender's expense.

Public participation

The legislation provides for detailed informational and public participation procedures in respect of the plans, reports etc. referred to above. In general, the following procedure is followed: firstly, a draft plan is published by the public authority concerned, to which the maximum publicity is given by means of laying it open to inspection in numerous places, informational meetings, notices in the mass media etc. Every citizen or social grouping may comment on the plan, either in writing, or verbally at a public hearing.

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*) On this aspect see also, *inter alia* the leading article in the IDG Bulletin, 1979-80.

In the event of policy intentions at the national level, a compilation of these comments is published: "Planologische Kernbeslissing" (Key Planning Decision) *) procedure. The authority then draws up a definitive plan, which takes the comments into account and which has to be democratically approved by Parliament, the provincial states or the municipal council.
In view of the binding character of the municipal development plan, it is the procedure for this which contains the most safeguards for the citizen. There are, for example, ample possibilities for appealing against a development plan or for claiming compensation.

Drawbacks
The existing legislation has been found in practice to contain certain drawbacks, which it is hoped to abolish in future amendments to the law. The strong emphasis on the municipal development plan, for example, does not accord with the efforts to achieve enlargement of scale.
Another drawback is that the wide opportunities for appeal can result in lengthy delays, so that the implementation of a development plan may be delayed by as much for five years.

3.2. The Randstad Holland in the national planning policy.

3.2.1. Historical development.

Since the beginning of the 20th century a physical planning policy has been pursued at the national level, (albeit hesitantly and fragmentarily at first), which concentrated mainly on town expansion.

The Housing Act of 1901 was the first official intervention in the often extremely unfavourable living conditions in the 19th century residential districts. This act, which was mainly concerned with the quality of dwellings, obliged rapidly growing municipalities to build in accordance with extension plans drawn up in advance. An act of 1921 required municipalities to lay down in extension plans for the proposed use of *all* land (thus not only of land intended for housing development). In 1931 an act was passed which referred for the first time to regional plans.

After the war developments in the West accelerated to such an extent (rapid population growth, large-scale housing development, recovery and further growth of the economy) that the need to pursue a guiding policy was felt increasingly strongly. This policy has undergone a number of marked changes in the past thirty years. The image of what was understood by "Randstad Holland" also underwent a number of changes in consequence (cf. fig. 8).

In broad outline three phases can be distinguished:

a — During the 1950's, as a reaction to the rapid urbanisation, the policy was aimed in the first place at slowing down the growth of the cities.
The cities were felt to be "full" and the intention was to direct further population growth as far as possible to areas outside the Randstad. The latter was necessary to prevent the towns in the Randstad growing together to form a continuous agglomeration, with the attendant loss of valuable agricultural areas and recreational space.

This attempt to achieve a more balanced and harmonious distribution of population and activities over the whole country forms the theme of the report *Het Westen en overig Nederland* (The West and the Remainder of the Netherlands), which was published in 1956, and of the more detailed report, *De ontwikkeling van het Westen des Lands* (The Development of the West of the Country), of 1958. In this report the Randstad is seen as a ring of 71 urbanised municipalities defined according to the criteria of population density (> 300 per km^2) and breakdown of the economically active population (e.g. < 20% in agriculture). This division, which was in use for a long time (fig. 8A), has since become completely obsolete.

In 1960 appeared the (first) *Report on Physical Planning in the Netherlands*, which set out the main outlines of policy up to 1980. As far as the Randstad is concerned, this report carried forward in broad outline the policies of the 1956 and 1958 reports. A new element was the fact that the dispersal was no longer seen only as providing relief for the West, but also as a positive element in the development of the remainder of the Netherlands. The main concern here was a number of problem areas in the north, south-west and south-east of the country, where the unemployment rate exceeded the national average (see, *inter alia*, IDG Bulletin, 1976-77, p. 15).

*) See *inter alia*, p. 30 of this guide and IDG Bulletin, 1977-78, p. 44.

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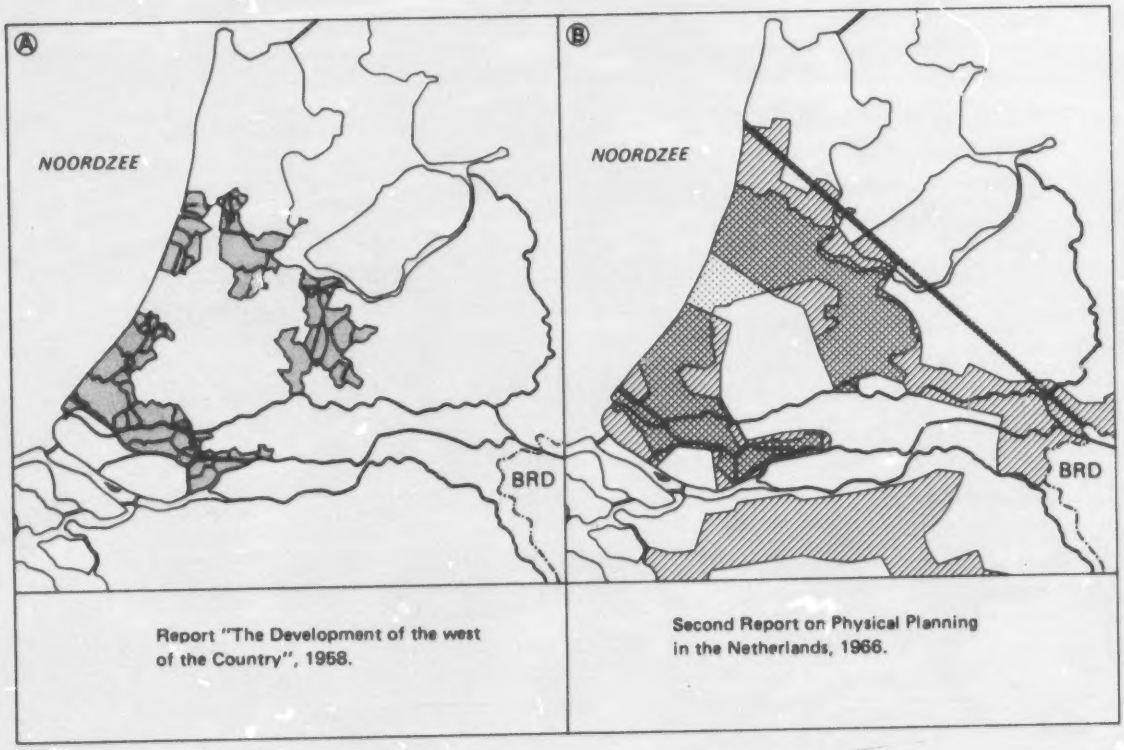
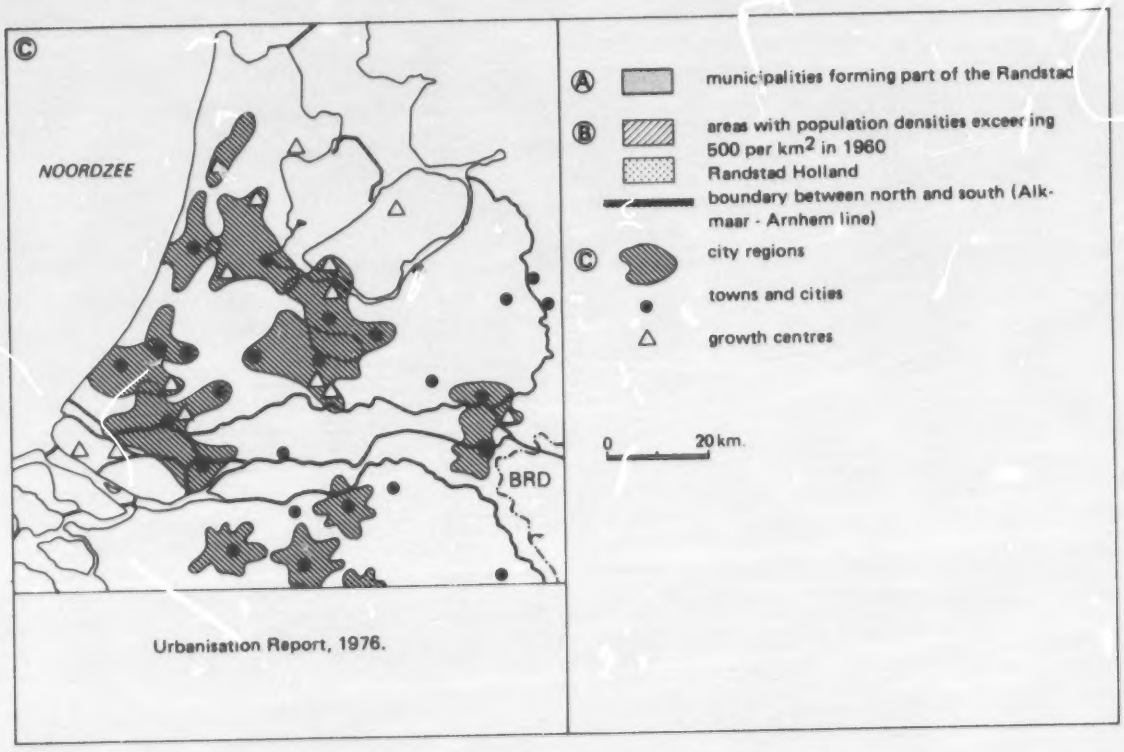


Report "The Development of the west of the Country", 1958.

Second Report on Physical Planning in the Netherlands, 1966.



Urbanisation Report, 1976.

fig. 8. – *Picture of the Randstad in Central Government Reports of 1958, 1966 and 1976.*

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b– In 1966 appeared the *Second Report on Physical Planning in the Netherlands,* which set out the desired developments up to the year 2000. In this report physical planning in the Netherlands was for the first time placed explicitly in a wider West European context. In particular, the Randstad was seen as part of a complex of areas of urban concentration bordering the North Sea (fig. 9).

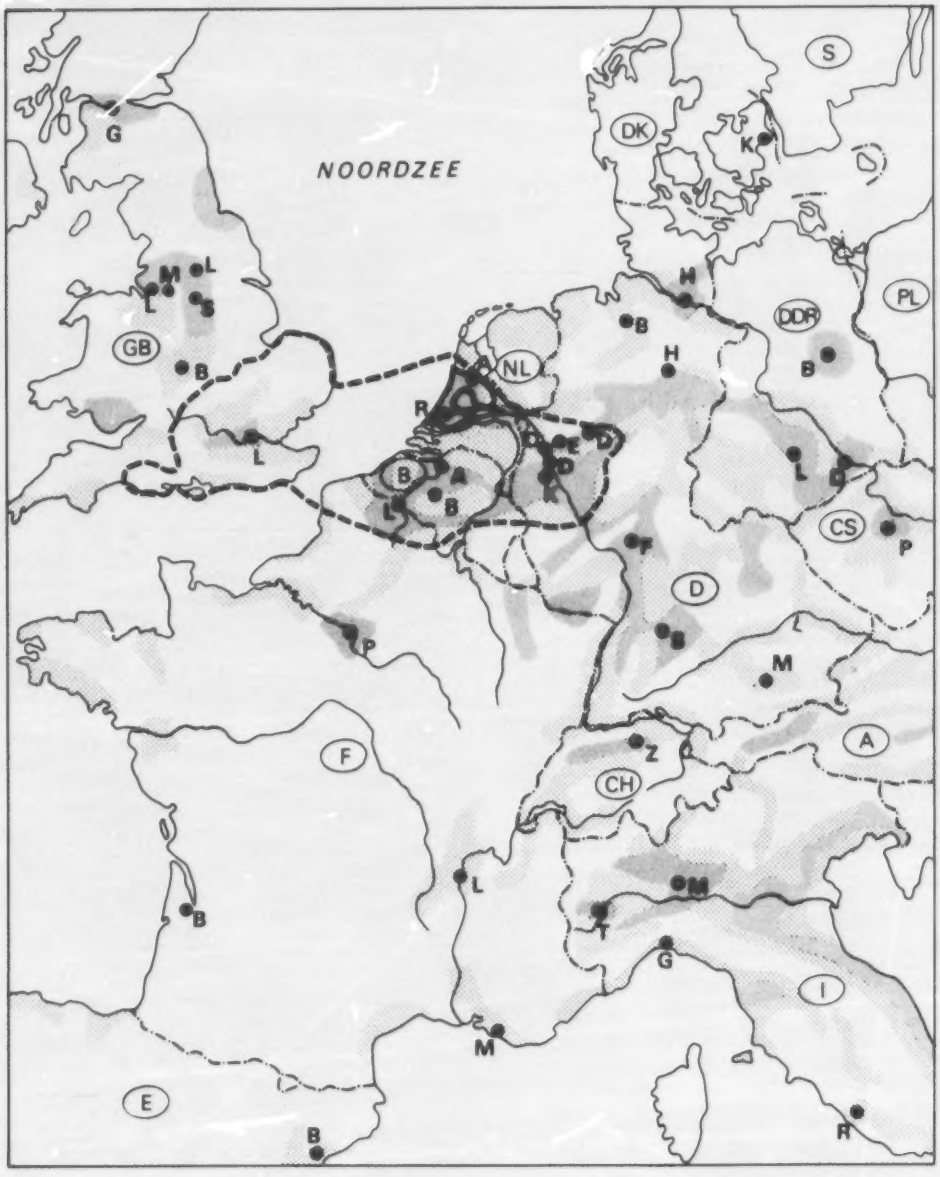

Fig. 9 – *The Randstad Holland in Europe.*

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Within this totality it was to be expected that the further growth of the economy would take place mainly in and around the seaports and nearby large cities. For the Netherlands, therefore, this meant a further strengthening of the Randstad.

The Report started from the assumption that, in the year 2000, the Netherlands would have a population of 20 million. Partly as a result of the development described above – in the absence of planning control – 15 million of these people would be living in the south-western half of the country (south of the Alkmaar - Arnhem line, see fig. 8B) and 5 million in the other half. According to the Report the dispersal policy should be aimed at altering this to a proportion of 14:6.

The Report devoted much attention to the intensifying process of suburbanisation. In order to prevent all the rural areas becoming fully built over, the principle of "concentrated deconcentration" was introduced. This meant that the part of the population increase which took place outside the major cities was to be accommodated in a limited number of places which were not too small in size and at not too great a distance from the central cities. The purpose in applying this principle was to counter the disadvantages both of too great a deconcentration (encroachment on rural areas, a large number of small places with low level of services), as of over-concentration in a few very large cities (poor living environment, congestion).

The concept of the Randstad hardly appears in the Second Report, either in word or (map) image. A number of urban zones were distinguished on the basis of population density figures and two of these can be designated as the Northern and Southern Wings of the Randstad (fig. 8B). These zones were to remain separated by rural areas, the "Central Open Space". To achieve this the further growth of the two Randstad wings was to be directed outwards.

In the early 1970's the government tried in various ways to give form to the *principle of dispersal*. In a country in which nearly 60% of the population is employed in the services sector, it was natural that attention should first be directed to this field. An accompanying advantage is that since about a third of the services employment is in the public sector, it can be influenced directly by the government. Thus, within the framework of a plan for the large-scale dispersal of government departments, a number of government offices were moved from The Hague to such places as Arnhem, Apeldoorn, Heerlen, Veendam and Groningen. The effect of the removal has been disappointing, however, since only a small proportion of the civil servants employed in them moved with their offices.

Another set of measures aimed to slow down industrial investment in some areas and encourage it elsewhere by means of a complicated system of subsidies, levies and licences (the Selective Investment Provisions Act of 1974 and the Investment Account Act of 1978). Since, however, investments declined rapidly after 1975 as a result of the deteriorating economic situation, these measures also had little effect.

c – After 1970 it rapidly became clear that the ideas from the Second Report were far from being realised. The desired migration to the North of the country was not taking place.
Suburbanisation in the Green Heart of the Randstad was increasing at a tempestuous rate (see Section 2.2.2.) and certainly not in the form of the recommended "concentrated deconcentration"! These are incidentally noy the only reasons why the government decided so soon after the publication of the exhaustive Second Report on Physical Planning in the Netherlands to proceed to the publication of a Third Report. It was discovered that the lack of effective powers for carrying out the policies was the main reason for the disappointing developments and that insufficient attention had been devoted to this aspect in the Second Report. Moreover, the economic situation and attitudes towards economic growth, the exhaustion of raw materials and fuels, conservation of the environment and nature etc. had changed dramatically (the first Report of the Club of Rome had recently been published.) Lastly, the birth rate had suddenly begun to fall, so that the projections of the population of the Netherlands in the year 2000, for example, had had to be revised drastically downwards. Where it was still assumed in the Second Report that there would be 20 million people in 2000, the projections now ranged between 14.3 and 15.2 million, or 25% lower.

The following are some new aspects relating to the procedure for the publication of the Third Report:

- the Report does not appear as a single whole, but in a number of separate parts. Thus Part 1, the so-called Orientation Report, setting out the background and objectives of the proposed spatial policy, appeared at the beginning of 1974. This introductory report was followed in 1976 by the Urbanisation Report and in 1977, by the Report on Rural Areas. In addition to these there have been a number of "Structure Schemes" dealing with particular aspects, such as water supply, the policy for the Wadden Sea, Traffic and Transport, Public Housing etc. (see, *inter alia*, IDG Bulletins, 1977-78 and 1978-79 Section III.3.).

- Much wider possibilities have been created for participation by organisations (including local authorities) and private individuals. All the reports and structure schemes referred to above are subject to the "Key Planning Decision" procedure (PKB), which comprises the following stages:

  1. Preparation and publication of the policy proposal.
  2. Laying open for inspection in libraries, town halls, etc.
  3. Public meetings to provide information.
  4. Opportunity to submit written observations.
  5. Public inquiries.
  6. Report of the Advisory Council for Physical Planning.
     The Advisory Council (RARO) is a college in which representatives of many sections of society can make their voice heard, such as spokesmen for agriculture and industry, traffic and transport, nature conservation and recreation, employers and employees, science and local government. In addition to advising the government, one of the RARO's tasks is to organise participation within the framework of the PKB.
  7. Government's decision.
  8. Debate in Parliament.
  9. Possible publication of a Report of amendments.

  It is expected that this procedure will be passed into law in the framework of forthcoming alterations of the Physical Planning Act.

The comments made during participation and the conclusions of the RARO are published separately (Parts b and c), after which the final decision by the government is published as part d. All this naturally takes time; more than fifteen months elapsed between the publication of Parts a and d of the Orientation Report, and more than a year in the case of the Urbanisation Report.

3.2.2. The Urbanisation Report

This is the most important part of the Third Report as far as the physical planning policy for the Randstad Holland is concerned. The Randstad is seen in this report as a number of overlapping city regions. The form and extent of these regions (see fig. 8c) are based on a maximum travelling time from home to city centre of 25 minutes by public transport (35 minutes for the few major cities).

The report starts from five principles:

- Congestion and unbalanced urban structure must be avoided;
- open spaces and areas of high ecological or landscape value must be protected; these ideas are elaborated further in the Report on Rural Areas (Part 3 of the Third Report);
- regional deficiences and inequalities in the field of socio-economic development must be reduced;
- regional deficiencies and inequalities in the field of service provision must be reduced;
- the growth of mobility must be reduced.

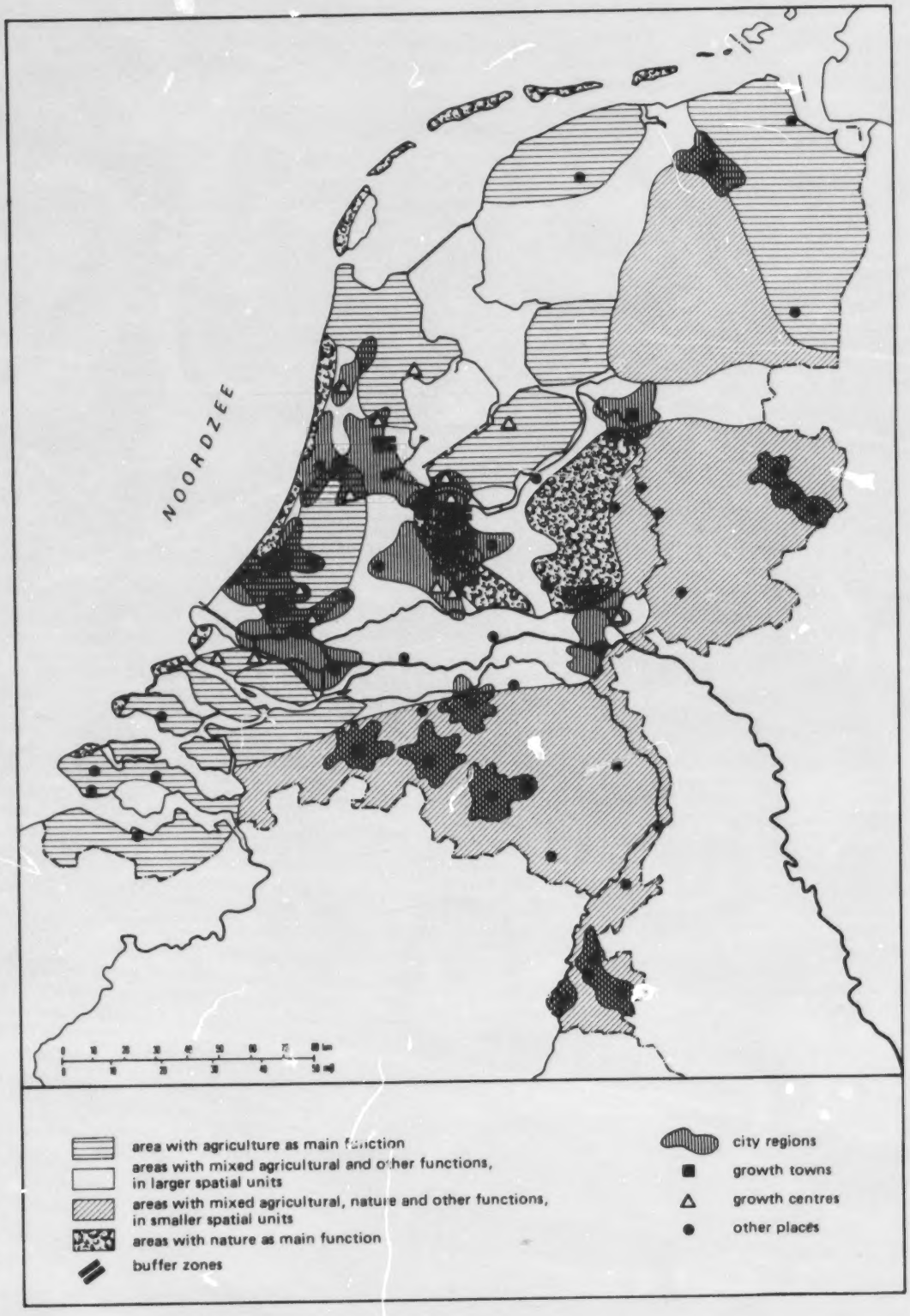
NOORDZEE
area with agriculture as main function
areas with mixed agricultural and other functions, in larger spatial units
areas with mixed agricultural, nature and other functions, in smaller spatial units
areas with nature as main function
buffer zones
city regions
growth towns
growth centres
other places

fig. 10. – *Summary of the Structure Sketches for Urbanisation and Rural Areas.*

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A striking feature of the definitive version of the Urbanisation Report is the totally changed approach to the dispersal policy. For many decades the principle was unreservedly upheld that the population increase of the congested Randstad should be diverted to less densely populated areas of the country, preferably *outside* the ring of the Randstad towns, and the farther outside, the better.

Now it appeared, however:

- that the population of the cities in the West was falling rapidly, with all the attendant consequences for the level of services, impoverishment, in short, a decline in the quality of urban life;
- that the growth was being displaced not so much towards the three Northern provinces, for example, as towards the "Green Heart", or to areas of attractive landscape in the neighbouring provinces of Utrecht, Gelderland and North Brabant;
- that many people who settled here continued to work in the Randstad, giving rise to a rapid growth in commuting over increasingly long distances;
- that the decline of the cities threatened the international significance of the Randstad from the socio-economic and cultural point of view.

Because of all these considerations the stringent policy of dispersal was largely abandoned. The present aim is to reduce the congestion in the Randstad and improve the climate of living through replanning in order to put a stop to migration from the cities. The following positive measures have been proposed:

- enlarging the residential capacity of the towns, particularly by following an active *urban renewal policy* (not replacing old dwellings by office blocks or multi-storey car parks, but by new dwellings) and by filling up "empty spaces" in the towns with houses;
- accommodating any population which nevertheless leaves the cities in a limited number of places, preferably in the west of the country and at a short distance from the cities. The Report distinguishes in this connection between *growth towns* and *growth centres*. Some of the latter may even be situated within the urban ring of the Randstad! Apart from Almere in Zuidelijk Flevoland, the growth towns and centres are existing towns and villages, the growth of which will be accelerated (fig. 10).
  Designation as growth centre means that at least 6,000 dwellings have to be built within ten years; for growth towns the corresponding figure is 10.000. The growth municipalities can count upon various forms of financial and other support from the government.

Table 15 – Population 1979 and target population 1990 for growth centres and growth towns.

	Population 1-1-1979	Target Population 1-1-1980 *)
Growth centres		
Alkmaar	69.000	94.500
Hoorn	37.300	67.000
Purmerend	32.200	58.000
Lelystad	35.500	70.500
Almere	4.200	74.000
Huizen/Blaricum	39.400	47.500
Haarlemmermeer **)	76.000	86.500
Houten	8.500	24.500
Nieuwegein	34.800	56.000
Capelle a/d IJssel	40.700	70.000
Spijkenisse	34.800	64.500
Hellevoetsluis	18.500	25.000
Zoetermeer	59.100	95.500
Growth towns		
Breda	117.500	146.600
Helmond	58.600	91.100
Groningen	160.600	211.700
Zwolle	81.300	112.900

At the time of going to press four growth towns and thirteen growth centres had been designated (table 15).

In the definitive version of the Urbanisation Report (Part 2E, 1979) the possibility has also been kept open of designating Amersfoort, Emmen, Leeuwarden and Roosendaal or Bergen op Zoom as growth towns, and of Duiven-Westervoort and Leidschendam as growth centres. In addition, five centres in the central area of the Randstad have been designated to accommodate the local population growth in the first instance. These are: Alphen aan de Rijn, Gorinchem, Gouda, Tiel and Woerden.

*) calculated by multiplying the number of dwellings (existing and proposed) by the expected average dwelling occupancy in 1990 (2.71).

**) In the Haarlemmermeer growth will take place mainly in the residential nuclei of Hoofddorp and Vijfhuizen.

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In conclusion, it may be posited that the former dispersal policy has been replaced by an "anti-dispersal" policy. As shown by the figures below, for the first time the aim is to achieve a *larger* share of the total population for the West than would have been achieved without intervention.

Table 16 – Population of regions in %

	North	East	West	S.West	South
Population 1.1.65	10,9	18,4	47,1	2,4	21,2
idem 1.1.79	11,0	19,7	44,7	2,5	22,1
Second Report					
Trend calculation 1966	11,2	20,2	42,5	2,5	23,8
Plan target 2000	15,0	23,8	33,7	3,8	23,7
Urbanisation Report					
Trend calculation 1976	11,4	21,2	40,6	2,4	24,4
Plan target 2000	11,4	20,7	41,9	2,4	23,6

The table shows very clearly the difference in objectives between the Second Report of 1966 and the Urbanisation Report. Nevertheless, the long-cherished principle of preventing as far as possible the growing together of towns and city regions has been fully maintained. Keeping open the "Green Heart" and maintaining or designating buffer zones between the towns and cities remain as important policy objectives. The principle has been abandoned only in respect of a few fringe areas of the Green Heart, notably the area east of Delft (inc. Pijnacker/Nootdorp) and part of the Haarlemmermeer (S.W. of Amsterdam).

A second striking difference between the Urbanisation Report as part of the Third Report on Physical Planning in the Netherlands, on the one hand, and the First (1960) and Second Report (1966) on the other hand, is that the two earlier Reports contain only general indications which are intended to serve as a basis for detailed working out in the regional plans and development plans of the provinces and municipalities, respectively. Many people found these Reports insufficiently specific and regard this as one of the reasons why they achieved such disappointing results.
The Urbanisation Report follows a completely different course. In it the plans for the future form of the urban part of the Netherlands are worked out in much greater detail. No longer are indications given in only vague terms of where future developments are to take place, but the precise sites are named, together with the number of dwellings to be constructed. It is also much more specific about the legal powers to be used to achieve the proposed goals.

3.2.3. The Report on Rural Areas

The most striking element of Part 3 of the Third Report is the zoning which has been applied to the non-urban areas (see, *inter alia*, "Compact Geography of the Netherlands", 3rd edition, pp. 40-41 and IDG Bulletin, 1978-79, pp. 66-67).

As may be seen from fig. 10 (p. 31), which is a combination of the main outlines from the Urbanisation Report and the Report on Rural Areas, the first category ("areas with agriculture as main function") occurs in the Randstad region almost exclusively in the "Green Heart".

The fourth category – areas with nature as main function – is to be found in the Randstad region only in some parts of the Utrecht Hill Ridge and the dune areas. The third category – areas with mixed agricultural, nature and other functions, in smaller spatial units – does not occur at all in the western provinces. It is in just these two categories that many lanscapes occur, for example in the High Netherlands, which are valuable from the point of view of nature and recreation, so that in this respect the Randstad region is poorly endowed. The remaining category – areas with mixed agricultural and other functions, in larger spatial units – relates mainly to the flat, open landscape of the polders. However attractive this countryside may be in a number of ways, it certainly does not lend itself to large-scale open air recreation.

Buffer Zones:

The map (fig. 10) shows the location of seven "buffer zones". Mention was already made of these in the First Report on Physical Planning (1960), but only in a "defensive" sense: the purpose of the zones was to prevent the coalescence of neighbouring urban areas.

The Third Report gives them a further, more positive, function: provided they are carefully laid out for the purpose, they can serve as important rest and recreational zones for the inhabitants of the surrounding towns and cities. The Report on Rural areas refers in this connection to the "Green Structure of the Randstad", by which is meant a series of non-urban areas, reserved partly for agricultural use, partly for open air recreation. In broad outline the "green structure" follows the horseshoe form of the large cities in the Randstad.

The structure may be formed partly of existing landscapes – such as certain agricultural areas (whether or not consolidated), lakes (e.g. N. of Leiden and N. of Utrecht), parts of the dune chain and of the Utrecht Hill Ridge, country estates (e.g. along the Vecht). In addition, areas may be laid out specifically for this twofold purpose – separation of towns and increased scope for open air recreation in the vicinity of the cities. This concerns particularly the "buffer zones" referred to above.

The most advanced of these areas are the developments in the *Spaarnwoude* area (between Amsterdam and Haarlem). This 2,700 hectare site (see fig. 11 and photograph VI) will largely be laid out for many kinds of open air recreation. About one third of the project has already been completed.

The surrounding cities, which are already in an extremely difficult position, partly because of the decline in population, are not able to invest much money in these buffer zones. Consequently, the central government plays a leading part in financing the acquisition of land, laying it out and managing and maintaining it. Thus the Ministry of Culture, Recreation and Social Work subsidizes the Foundation for the Spaarnwoude Recreational Area (in which the province and inerested municipalities participate) to the extent of 75% of the investment costs and 50% of the maintenance and management costs.

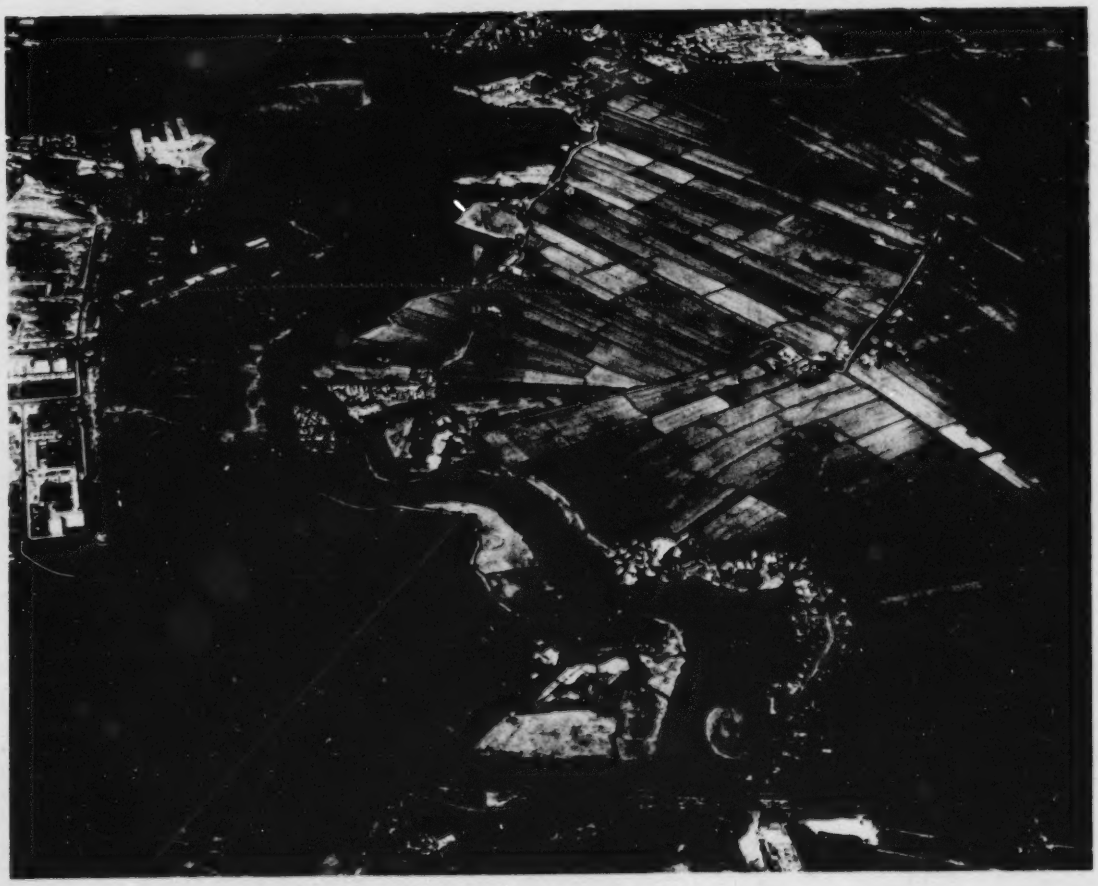

Photo VI – *Spaarnwoude. Recreational Area, between Amsterdam and Haarlem. In the foreground the motorway and railway linking the two cities; at the top the small settlement of Spaarndam (looking N.).*

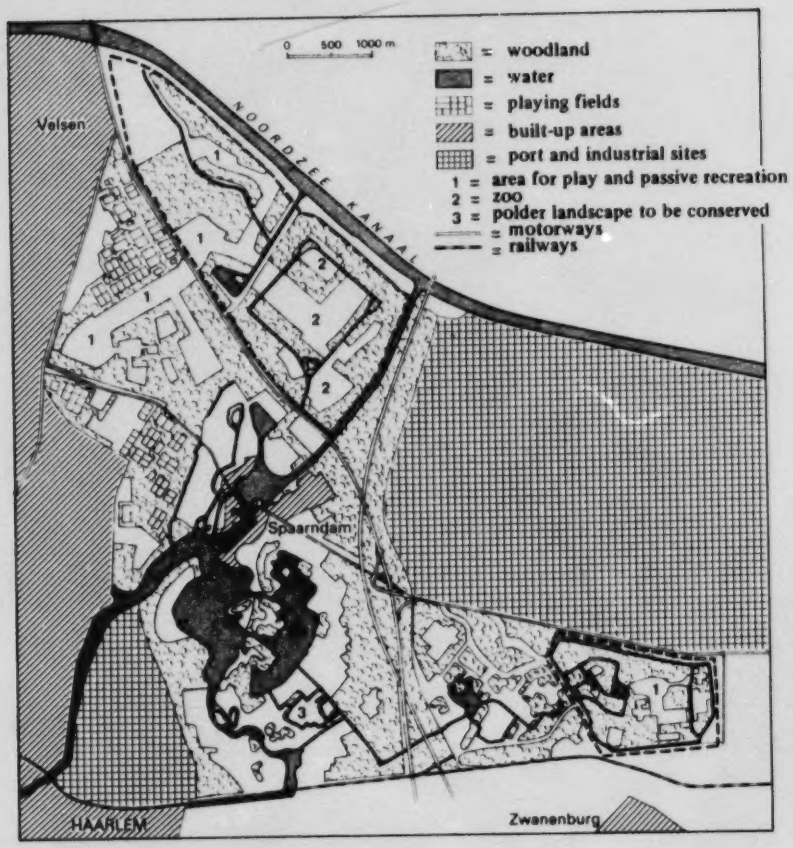

fig. 11. – *Spaarnwoude recreational area.*

A similar project for an area more than twice as large (6,000 ha.) is proposed for the area between Rotterdam, Delft and The Hague, known as "Midden-Delfland". In this area more than two thirds will remain in agricultural use, mostly as grassland.

3.3. – Planning for the Randstad at the meso and micro levels.

As described above (Section 3.1.), the policy outlined by the central government is filled in mainly at the levels of the provinces and municipalities. The most important instruments for this purpose are the regional plans of the provinces and the development plans of the municipalities.

Regional Plans:

These plans can be drawn up by the provincial authorities – in consultation with the relevant municipalities – for a whole province or parts of it. The regional plan is very general in character and serves as a basis for the municipal policies. In recent years there has been a pronounced tendency to extend the areas covered by structure plans, particularly in the densely populated Randstad region. Originally, because of the frequently great differences in such characteristics as socio-economic structure which occur over short distances, the tendency was to define a considerable number of relatively small structure plan areas, but nevertheless because of the many interrelationships between these closely spaced areas, a process of enlargement of scale has now set in. In the west of the province of South Holland for example, four small regional plans have been combined into a single plan, and the same has happened to the original five regional plans for the IJmond region (Amsterdam-Zaanstreek-IJmuiden).

Fig. 12 shows the state of progress of the regional plans at 1st January 1979.
Each regional plan consists of a description of the desired development in outline and, where appropriate, of the stages during which the development might be realised. The plan is accompanied by one or more maps.

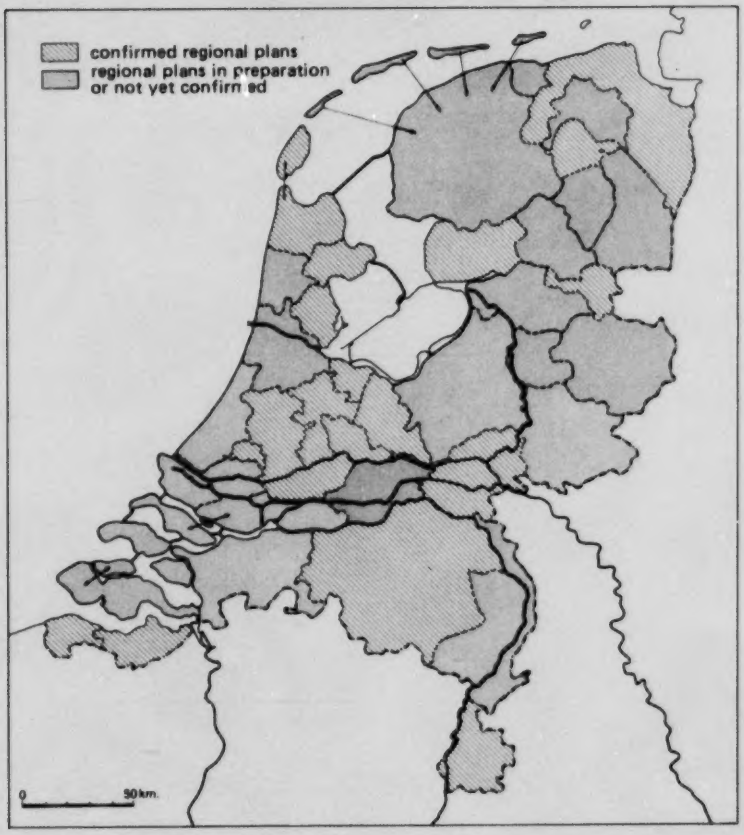

fig. 12. – *Progress of Regional Plans at 1st January 1979.*

Structure and development plans

The municipalities may draw up a structure plan for the whole or a part of their territory, and they are *obliged* to prepare a development plan for the non-built-up portions. As stated in Section B.1, it is not compulsory to prepare a structure plan, nor in practice does one exist for a great many municipalities. The development plans prescribe precisely the use of land and buildings in the plan area. The principal document for these plans is the *map* showing the accurate locations of the planned uses.

By way of example, fig. 13 shows map extracts forming part of the regional, structure and development plans for the "growth centre" of Nieuwegein, situated south of the city of Utrecht. Map A is part of the Regional Plan for Central and South East Utrecht (see fig. 12), which was confirmed in 1974. It gives no more than an overall indication of the partly existing, partly proposed land use. It contains, *inter alia*, the growth centres of Nieuwegein and Houten, with ultimate planned poulations of 50,000 and 25,000 respectively. Comparison with Map B – extract of the Structure Plan which has been prepared for the whole of the municipal territory of the growth centre of Nieuwegein – shows that the municipality has conformed in broad outline with the regional plan. The map also shows how the coarse structure of the regional plan has been further filled in. Map C, finally, shows how part of the residential area in Nieuwegein has been worked out in detail, including the application of a clear division between residential area and principal traffic road with reservation for express tram.

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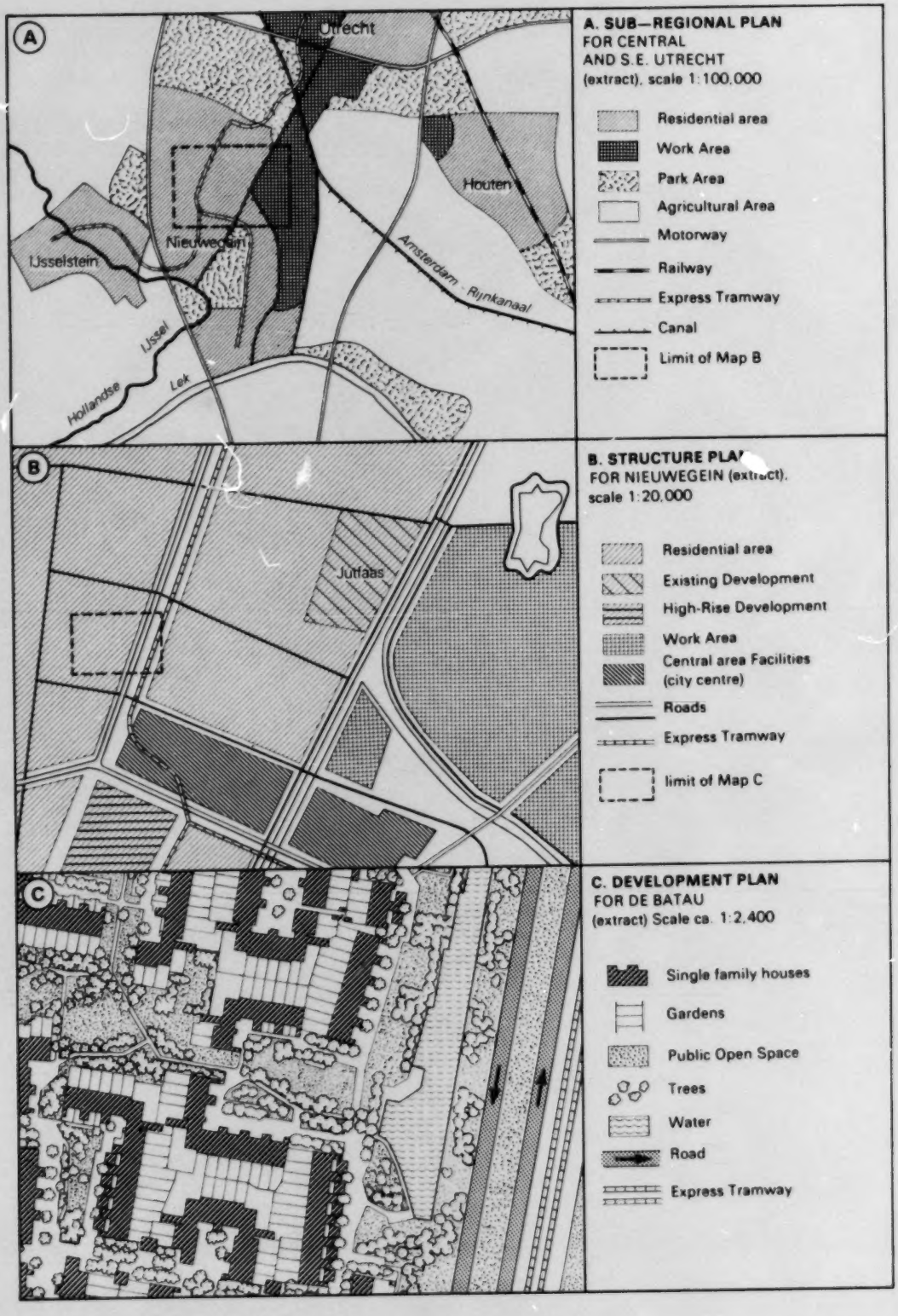
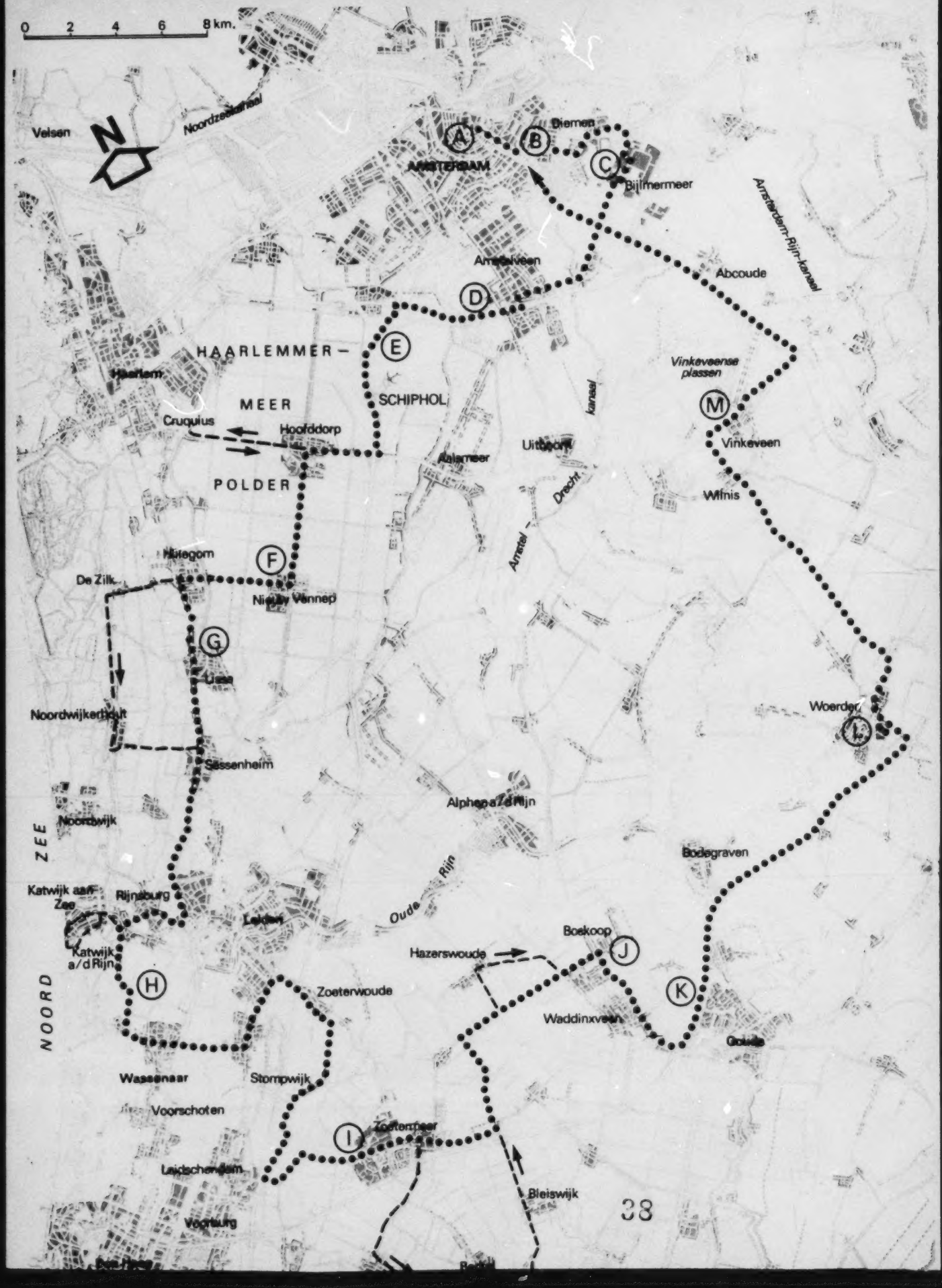


fig. 13. – *Regional Plan, Structure Plan and Development Plan; example of Nieuwegein (Utrecht).*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Hillegom
De Zilk
Noordwijkerhout
Sassenheim
Woerden
Alphen a/d Rijn
Bodegraven
Noordwijk
ZEE
Katwijk aan Zee
Rijnsburg
Leiden
Oude Rijn
Boskoop
Hazerswoude
Katwijk a/d Rijn
NOORD
Zoeterwoude
Waddinxveen
Gouda
Wassenaar
Stompwijk
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B – SUGGESTIONS FOR EXCURSIONS

1. Introduction

In the foregoing general section of this guide the emphasis has been placed very much on physical planning. In the excursion described below in section 2 this aspect will again receive frequent emphasis.
In addition, however, interest has been expressed in such matters as landscape and water economy, agriculture and horticulture, ports and traffic, nature conservation and recreation, and these aspects will therefore receive attention in section 3.

The description of excursion possibilities offered here can never be complete, but with the aid of good maps (see Section 5, p. 69) anyone can draw up a programme on the basis of our suggestions. We must warn the reader at this point, however, against overloading his or her programme. The short distances within the Randstad are misleading. People often forget that the generally very heavy traffic, not only within the cities (combined with parking difficulties), but also on the highways linking them may cause lengthy delays.
Besides the rush-hour traffic on weekdays, there is the traffic to and from recreational areas at summer weekends.

A second warning relates to the making of arrangements: arrangements both for accommodation and conducted tours should be made well in advance, particularly for the Easter holiday and the summer months. Lastly, it should be noted that changes may have occurred in the road network and in signposting since the publication of this guide.

2. Day Excursion in the Randstad Holland

This excursion, which begins in Amsterdam, gives within the compass of one (long) day an overview of various aspects of the Randstad Holland, with the emphasis on physical planning. The length of the route is approximately 200 km. The letters in the description below correspond with those on the map showing the route (fig. 14).

A – The historical centre of Amsterdam

The old centre of Amsterdam, with its many picturesque corners, greatly appeals to the imagination of the foreign tourist. As stated in Section A of this guide, Amsterdam is not an old city, relatively speaking. Not until a dam was constructed in the mouth of the Amstel around 1270 (on the site of the present National Monument on the Dam Square) did the place gain any significance. Important extensions, in the form of the well-known concentric canal girdles, date from the 17th century, when Amsterdam's prosperity was at its greatest. The concentric network is interrupted only in the west – the "Jordaan" – where the original field pattern is still clearly recognisable in the town plan (see the star in fig. 15A). For generations it has been the practice in these low-lying peatlands to raise the level of all building land with sand and to underpin every building with piles, formerly of timber, now of concrete.

Towards the end of the 17th century the area within the defensive moat was almost completely built up. With its 200,000 inhabitants Amsterdam was at that time Europe's fourth largest city. However picturesque it may be in many places, this part of the city is also one of the greatest urban problem areas of the Netherlands.
The urban structure, with narrow streets and canals, is wholly inadequate to cope with the demands of modern traffic. A high proportion of the dwellings fail to meet present-day standards. The city has no less than 7,000 properties designated as being of architectural and historic interest (photo VII). Much more money is needed to restore and maintain them than can be raised by the municipality, the province and the central government, who are generally each responsible for 20% of the cost of restoration.

The municipality's policy aims to strengthen the residential and shopping functions in the old city and to reduce traffic congestion. The aim is to combat the further decline of the central area function (the population of the old city has fallen by about 80% since the beginning of the century, from 300,000 to a little over 60,000).

← **fig. 14.** – *Randstad Holland Excursion Route (based on ANWB Road Map "Midden Nederland", scale 1 : 200,000).*

The best way to obtain a picture of the old city and its problems is to take a walk, for example, through the oldest part of the centre, (around the Oudezijds Voorburgwal) the redevelopment area around the Nieuwmarkt and Waterlooplein, the entertainment district of the Rembrandtsplein, the Kalverstraat (most famous shopping street), over the Dam with the Royal Palace and National Monument, and along part of the girdles of Heren, Keizers and Prinsengracht. A boat trip along the canals is also to be recommended (see list of adresses in Section B.4., p. 65).

We would further recommend a visit to the permanent Information and Exhibition Centre of the Town Planning Department, at 440 Keizersgracht (film and slide shows in French, German or English will be given if requested in advance; see adress list). Since a visit to this centre, combined with a walking tour or boat trip, requires at least half a day, it is recommended that this part of the programme should be reserved for a separate day, e.g. to the day preceding the one on which the excursion described below is made.

B – Nineteenth century residential districts in East Amsterdam.

Leave the centre on the south east via the Weesperstraat (from the Waterlooplein follow the signs for The Hague and Utrecht). After having crossed the outermost of the old defensive moats turn left, past the Amstel Brewery, onto the Mauritskade. At a roundabout, with the Royal Institute for the Tropics on the right (indicated by a star in fig. 15B), follow the signs "Havens-Oost/Amsterdam Noord" and about 400 metres further on turn right into the Pontanusstraat. Then turn right at the railway viaduct – 1e Van Swindenstraat – and left at the end of that street into the Linnaeusstraat.

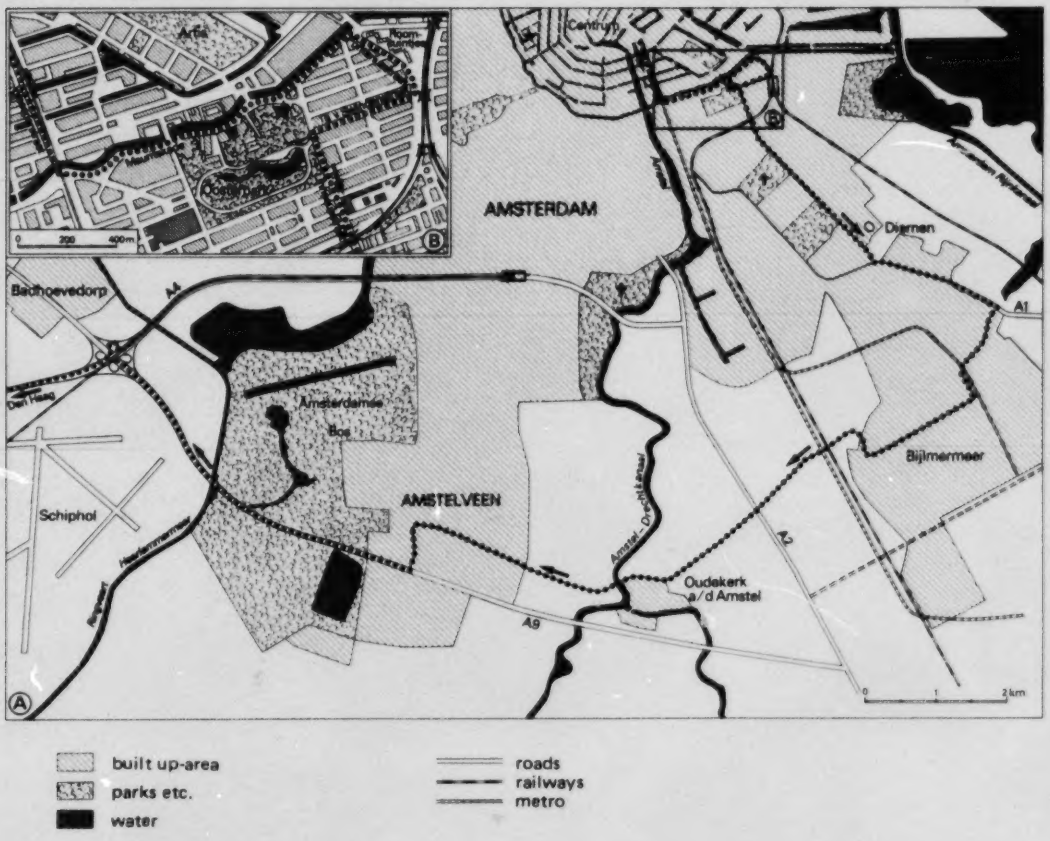

fig. 15. – *Excursion route in Amsterdam and environs.*

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Photos VII/VIII — *17th century and 19th century Amsterdam: the Herengracht in the centre and the Govert Flinckstraat in South Amsterdam.*

After a period of malaise during the 18th and early 19th centuries, Amsterdam recovered during the second half of the 19th century, partly as a result of a number of important improvements to the infrastructure (including the construction of railways and the North Sea Canal, and the reclamation of the nearby Haarlemmermeer and the IJ lakes). In the thirty years between 1870 and 1900 the population doubled from 255,000 to 510,000 while the built-up area also doubled in extent. Development took the form of hastily constructed residential districts in the areas surrounding the 17th century defensive moat, again following the lay out of the agricultural field pattern. This ring of working class quarters, which are much too densely built and monotonous by modern standards, is now the subject of drastic urban renewal (photo VIII).

The eleven urban renewal areas designated by the City of Amsterdam contain a total of 126,000 dwellings, which is 45% of the city's total housing stock.

Signs of urban renewal activities or the results of them may be observed at various places in the 19th century quarters. Such signs include empty and boarded-up properties, open spaces where houses have already been demolished, old houses which have been made habitable again by housing improvement, new houses on sites where old properties have been demolished. The policy of the municipality is aimed at maintaining and improving as much as possible of the existing stock and, where this is no longer possible, to replace the old development by new buildings (always behind the same building lines).

The residential function of these areas must be maintained as far as possible, in the first place, in the interests of the local population. Amsterdam also receives subsidies from the central government for the financing of these projects.

The bus tour passes through the Dapperbuurt, one of the large residential districts quickly run up at the end of the 19th century to house the growing number of workers in commerce and industry (photo IX).

Photo IX – *The Dapper quarter in East Amsterdam, looking N. Right, immediately behind the railway, the "Roomtuintjes", redevelopment scheme. Left, below centre of the picture – further redevelopment.*

Some 10,000 people now live in this district, which contains about 5,000 dwellings (the average dwelling occupancy fell from 2.90 in 1960 to 2.07 in 1976). The great majority of the dwellings in this quarter will have to be replaced by new development, one reason being that the foundations are generally in a poor condition. Along the Pontanusstraat one sees first a completed new development on the left – the "Roomtuintjes" – and then, a little farther along on the right, a project which was under construction at the time of publication of this guide (see photo X, taken in May 1980).

Continue along the Linnaeusstraat and leave the city in a south-easterly direction along the Middenweg. At the three-way junction shortly after the Ajax stadium follow the signs to Diemen and Amersfoort and turn right after about two kilometres in the direction of Haarlem and Schiphol (it is possible that after the completion – in 1981? – of a ring road S.E. of the Bijlmermeer the signs at this junction will no longer indicate Haarlem/Schiphol, but only "Industrieterrein Diemen" and, possibly, Bijlmermeer). Continue following the route for through traffic via the main traffic roads in the new residential district of Bijlmermeer.

C. – Bijlmermeer

In 1935 a General Extension Plan was confirmed which, apart from a few interim amendments, was largely carried out during the years up to 1970. During the 1960's it became clear that the implementation of the plan would by no means meet the whole of the future housing need. An important reason for this was the fall in capacity of the urban renewal districts.

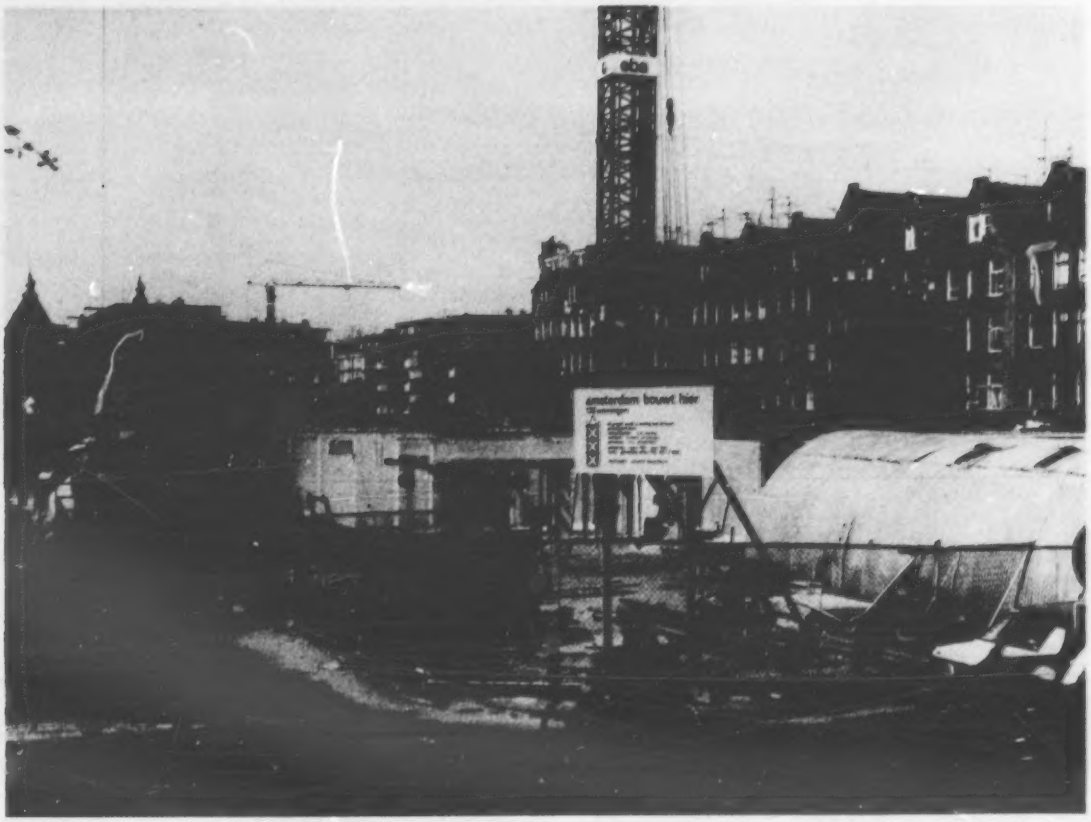

Photo X – *Redevelopment in the Dapper quarter (Wagenaarstraat). Text on the board: "Amsterdam is building here 138 dwellings. This project is being carried out in consultation with the residents by ....."*.

It was therefore decided in the first place that a considerably larger number of dwellings should be built in North Amsterdam than was originally planned. The construction of two road tunnels under the IJ and the North Sea Canal, and of a bridge over the Outer IJ made this feasible from the traffic point of view.
Subsequently, large new urban extensions were planned to the south of Amsterdam (partly on the territory of the municipality of Amstelveen) and to the south east (in the former municipality of Weesperkarspel).

The most well-known part of the latter extension is the Bijlmermeer, which was planned to accomodate 100,000 people. The central section of this estate presents a number of striking characteristics from the point of view of urban design:

- dwellings in elongated blocks, eleven storeys high;
- extensive areas of green around and between the blocks;
- through traffic on elevated roads, under which cyclists and pedestrians are able to pass;
- tenants' garages on the secondary roads, from which the dwellings can be reached along the "pedestrian streets" constructed within the blocks.

In 1977 a metro line came into service, linking the Bijlmermeer with the centre of Amsterdam. Within the Bijlmermeer the metro is carried on a viaduct (photo XI; see also IDG Bulletin 1977-78, pp. 38-41).

Photo XI – *Part of the Bijlmermeer with, in the foreground the double metro viaduct.*

It is obviously impossible to discuss all the new extensions of Amsterdam in this excursion description. Of interest, for example, although not included in the route, is the plan for the South of Amsterdam dating from the 1920's, with its very characteristic architecture and for its time, revolutionary urban planning principles. The lay out was designed by the architect Berlage and the buildings by architects of the "Amsterdam School".

The first stage in carrying out town extensions was and is to raise the level of the ground with sand. This sand is usually transported, mixed with water, from elsewhere by means of temporary pipelines. Formerly sand was used from the sandy areas of the Gooi (around Hilversum and Bussum) and the coastal dunes. Since 1945 much sand has been pumped from the lakes in the neighbourhood, Lake IJssel and the North Sea. Artificial lakes have also been created by the pumping up of sand from greater depths and these have later been given a recreational function.

In the Bijlmermeer continue following the route for through traffic until you cross the combined tracks of the Bijlmer-Amsterdam Central metro line and the railway from Utrecht to Amsterdam. Then follow the signs for Ouderkerk aan de Amstel. Past this old village, situated on the canalised Amstel which, as the Amstel-Drecht Canal, forms part of the inland shipping route between Amsterdam and Rotterdam, the high rise development of Amstelveen is quickly reached. Drive straight on through Amstelveen (i.e. do **not** *take the turning for "Amstelveen-Zuid/Schiphol/Haarlem/Utrecht") and at a roundabout after two kilometres again follow the signs for Haarlem and Schiphol. You then reach the A9 motorway, which leads after another kilometre through the Amsterdam Wood.*

D — Amstelveen and the Amsterdam Wood.

Amstelveen is an originally agricultural village where, under the influence of the nearby large city, an accelerated growth as a commuter settlement was already occuring before the war. After the war the growth continued at a fast rate, encouraged in part by the increasing importance of the airport at Schiphol.

Table 17 — Population of Amstelveen at 1st January.

1950	—	23.348
1960	—	40.710
1970	—	69.167
1980	—	69.770

The population trebled between 1950 and 1970 and now seems to have stabilised somewhat. In fact, there has even been a decline in the past few years, as in nearly all large and medium large towns: the population reached a peak in 1973 when it stood at over 72,850. The population of Amstelveen is employed mainly in the services sector. Employment increased considerably through the establishment of a large number of offices.

The establishment of these offices, which mainly originate from Amsterdam, was related not only to the greater accessibility, but also *inter alia* to the fact that businesses cannot buy land in Amsterdam, but only lease it. Many firms therefore prefer to locate in fringe municipalities, where such a regulation does not exist. The "Kronenburg" Project in the north east of Amstelveen is particularly noteworthy in this respect. It contains a large concentration of office buildings, diversified by blocks of student flats. Amstelveen now therefore has much more the character of a satellite town than of a purely dormitory suburb.

Immediately beyond Amstelveen the motorway crosses the *Amsterdam Wood*. The city council of Amsterdam decided in 1928 to lay out this 900 hectare wood in an area of polder lying 4 metres below sea level. The execution of the work began in the mid-1930's, thus providing work for thousands of unemployed during the period of economic depression. In addition to 300 hectares of woodland, the amenities include two lakes for aquatic sports, a competition rowing course, a canoeing pond, sports fields, a camping site, play areas, a riding centre and foot, cycle and bridle paths with a total length of more than 200 km.

Immediately beyond the Amsterdam Wood the road crosses the Ring Canal of the Haarlemmermeer.
At the intersection two kilometres further continue, following the signs for Schiphol/Den Haag, i.e. the A4 (E10) in a south-westerly direction.
In the central reservation you just see the new Amsterdam-Schiphol railway disappearing into the tunnel taking it to the underground station of Schiphol-Centrum.

E — Schiphol

A military airfield was constructed in 1917 in the north-east corner of the Haarlemmermeer, the former Haarlem Lake, which was reclaimed in 1852. The name Schiphol recalls the historical shipping connections of this corner of the 18,000 ha. lake, which was the grave of many ships.
Passenger flights began in 1919 and, since then, the area of the airport has steadily grown, from 50 ha. in 1920 to 60 ha. in 1950 and 1750 ha. at the present time. Transport of goods and passengers can take place by road, using the A4 (Amsterdam-The Hague) and A9 motorways, which intersect north of the airport. Moreover, a rail link with South Amsterdam was opened at the end of 1978, and this will be extended south-westwards in the next few years to Leiden and The Hague and north-eastwards to Amsterdam Central Station. The airport and its associated industries afford employment to 26,000 people. The number of passenger movements in 1979 was around 10 million and about 300,000 tons of freight were handled.

The major problem is the noise nuisance for neighbouring residential areas such as Amstelveen, Aalsmeer, Badhoevedorp and Zwanenburg. Now that it begins to seem increasingly that a second national airport will not be constructed for the time being (because of the reduced rate of growth of air traffic since 1973), thought is being given to reducing the noise nuisance for these places by "rotating" one of the most intensively used runways.

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The A4 motorway passes in a tunnel under one of the Schiphol runways and, soon afterwards, under a viaduct carrying a taxi-ing lane for aircraft.
About one kilometre beyond this viaduct turn right in the direction of Hoofddorp, then left in Hoofddorp for Nieuw Vennep and right in Nieuw Vennep towards Hillegom.

F – Haarlemmermeerpolder

The reclamation of this polder, carried out in the middle of the last century, had a twofold purpose. Not only was an area of 18,000 hectares added to the arable area of the Netherlands, but the threat created by this constantly growing lake to such cities as Amsterdam and Leiden was removed.
After the construction of a double ring dike with a ring canal in the middle, and after three years of pumping by three steam pumping engines, the polder fell dry in 1852. One of the pumping stations, complete with the impressive old machinery, has been preserved intact as a museum: the "Cruquius", near Haarlem, five kilometres north west of Hoofddorp (A visit to this museum would add ten kilometres to the excursion – i.e. the distance to and from Hoofddorp).

In the two other pumping stations the steam pumping engines were later replaced by more modern machinery. They continue to ensure that the polder, which lies from 3.5 to 4.6 metres below sea level, remains dry.
The excess water is carried to the sea by way of the ring canal and other collector reservoirs ("boezemwateren") – the North Sea Canal in the north and the Old Rhine in the south.

The soil of the drained lake consists of old marine clay (sea shells are often clearly visible in the sides of the roadside ditches), a soil type which is very suitable for agriculture (see also the section on p. 9). The first generation of farmers, however, was unable to enjoy the benefits of this. They were faced only with the extremely heavy task of laying out the newly emerged muddy surface and preparing it for arable farming. No help was available from the government such as now exists in the IJsselmeer polders during the first years after reclamation and colonisation. The government had undertaken the reclamation in the first instance for reasons of security; the costs had to be recouped as soon as possible through the sale of the drained land to private individuals.

In order to be able to sell the maximum amount of land, the roads and waterways in the polder were kept as narrow as possible. This did not help the water economy.
These narrow roads can be seen, for example, between Hoofddorp and Nieuw Vennep, along both sides of the equally narrow canal. The two villages just mentioned are almost self-evidently experiencing the effects of their location in the vicinity of the ring of Randstad cities. This will be further strengthened if they are given a station in the next few years on the new Amsterdam-Schiphol-Leiden-The Hague railway line. Moreover, Hoofddorp has been designated as a growth centre in the last stage of decisionmaking on the Urbanisation Report (see p. 32).

Immediately before Hillegom the route leaves the Haarlemmermeer polder by way of a bridge over the Ring Canal. In Hillegom follow the signs for Leiden, i.e. drive southwards through Lisse and Sassenheim.

G – Bulb District

This part of the route passes through the "bulb district", an area used mainly for horticulture and livestock farming and regarded as a division between the "North Wing" (Haarlem-Amsterdam etc.) and "South Wing" (Leiden-Delft-The Hage-Rotterdam etc.) of the ring of Randstad cities.
The growing of flower bulbs, as carried on here in a north-south strip with an area of about 3000 hectares, is perhaps the only form of agricultural practice in the world which annually attracts thousands of rourists.
During the second half of April and the first weeks of May the colours are at their brightest. Historically this culture is situated on the calcareous sandlands created by the digging away of the "old dunes". The latter arose at the beginning of the Holocene. Later, in about 1000 A.D., the sea and wind threw up a series of higher, "young" dunes, on the seaward side.
Here, also rising costs have encouraged economies of scale, resulting in a considerable decrease in the number of bulb growers. A number of them have continued their business in other parts of the country, so that there are now bulbfields, for example in the north of the province of North Holland. A large proportion of the bulbs is exported to countries all over the world.

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Photo XII – *Horticulture in the Bulb District. In the foreground bulbfields and glasshouse complexes; in the background the dunes and the North Sea.*

The activities are very seasonal in character, so that in order to ensure work and income throughout the year, an increasing number of bulb growers are building glasshouses on part of their land for the cultivation of cut flowers (photo XII).

During the period that the bulbs are in flower you may wish to follow an extended route by driving from Hillegom to Sassenheim via De Zilk and Noordwijkerhout (additional distance: about 7 km, cf. fig. 14). Past Sassenheim the route leads to the A44 motorway, going towards The Hague. After about 5 km, at the Oegstgeest intersection, follow the signs for Rijnsburg and Katwijk, and then, beyond Rijnsburg, the signs for Wassenaar and, subsequently Voorschoten.

H – City Regions of Leiden and The Hague

The route leads here first through places belonging to the Leiden agglomeration and then to the Hague agglomeration. The population of the two cities and their agglomerations present quite different pictures over the past ten years (table 18).

Table 18 – Populations of Leiden and The Hague and their respective agglomerations.

	1-1-1969	1-1-1974	1-1-1979
Leiden	102.530	96.820	102.750
Leiden agglomeration	160.130	164.580	172.310
The Hague	563.600	494.700	458.240
The Hague agglomeration	728.100	684.570	671.480

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The population of both cities declined during the first half of the 1970's. As far as The Hague was concerned, the agglomeration had also already begun to decline in population, while the agglomeration around Leiden continued to grow. During the period 1974-1979 Leiden was one of the few cities where the population increased, mainly because of a migration gain (both from inland and foreign migration). The decline in The Hague continued, although at a slower rate than during the preceding years. The agglomeration around Leiden continued to experience population growth, the rate of which even increased.

We see here a clear example of the threatened growing together of agglomerations in the ring of Randstad cities. The built-up areas of Leiden, Oegstgeest, Rijnsburg and Katwijk are almost continuous and the same applies to The Hague, Wassenaar, Voorburg and Leidschendam (fig. 1). It is hoped to avoid further merging of development through the designation of a number of "green" areas between the two agglomerations as *buffer zones*.

The route passes first through the village of Rijnsburg and then, after crossing the Old Rhine, through Katwijk aan de Rijn. From here it passes along the foot of the dunes to Wassenaar and the typical parkland landscape of the area to Voorschoten. Anyone wishing to catch sight of the North Sea should turn off past Rijnsburg to the fishing village of Katwijk aan Zee. In Katwijk follow first the Noordboulevard and, from the end of the boulevard, the signs for Leiden and The Hague (additional distance c. 12 km, cf. fig. 14).

As well as being a seaside resort, Katwijk is a fishing village, although without a harbour. The luggers of the Katwijk fishermen tie up in the harbour of IJmuiden. In the mouth of the Old Rhine there are two discharge sluices and a pumping station for the discharge of excess water from a considerable part of the polderland of Holland.

In Voorschoten follow the signs for Leiden and, soon after entering Leiden, turn right at a roundabout for Zoeterwoude. In Zoeterwoude follow the road to Stompwijk and, in Stompwijk, turn right for Leidschendam. Immediately before this road enters Leidschendam from under the motorway turn left towards Zoetermeer.

This route passes through a polder landscape which, because it is situated so close to urban areas, is striking for its sense of space and openness. From Stompwijk to Leidschendam the road runs alongside a canal which lies about four metres higher than the farmland on either side.
Between Leidschendam and Zoetermeer one passes a "molengang", a series of three windmills which, before the introduction of electric pumps, raised the water in stages from the polderland lying nearly five metres below sea level into the collector reservoir.

I -- Zoetermeer

It became clear in about 1960 that further outward growth of the Hague agglomeration would constitute the first serious urban attack on the "Green Heart". Surrounded as it was by areas of nature – dunes and sea – in the north and west and by important glasshouse areas in the south, the only prospect for The Hague appeared to be an extension in an easterly direction. Preference was given to the development of a satellite town at some distance from The Hague and, in 1966, the first pile was sunk for a new expansion of what was then the still rural village of Zoetermeer, situated on the motorway and railway twelve kilometres east of The Hague. Zoetermeer is listed in the Urbanisation Report as a growth centre . The population has grown rapidly (table 19).

Table 19 – Population, dwelling stock and average dwelling occupancy of Zoetermeer.

Year	Population	Dwelling stock	Av. dwelling occupancy
1960	8.440	–	–
1970	17.130	4.455	3,85
1972	24.130	6.948	3,47
1974	36.570	11.811	3,10
1976	45.480	15.189	2,99
1978	52.910	17.959	2,95
1980 *)	63.825	22.265	2,87
1990	95.500 **)	35.240	2,71

*) provisional figures.
**) see the first note under table 15. p. 32.

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The town consists at present of four large neighbourhoods, situated north and west of the old village; construction has now started of the new town centre. A striking feature is the difference in town planning concept; in the early neighbourhoods high rise development predominates, while there are no tall buildings in the recently completed Seghwaert neighbourhood (table 20). These differences are related, among other things, to the method of housing finance. For subsidy purposes there are three housing types in the Netherlands:

- *Housing Act dwellings*, built by housing associations, which receive a subsidy for the purpose or may borrow public money on favourable terms. These dwellings are solely for rent, at rents controlled by the government.
- *premium dwellings*, for which the government pays a subsidy to the owners in the form of an annually decreasing premium. The amount of the subsidy is related to income; for people in the lowest income class the total subsidy may amount to more than half of the land and building costs.
- *free sector dwellings*, for which the government provides no subsidy. These are mainly dwellings for sale. The prices are determined on the free market.

The ratio between the three sectors for dwellings completed in the Netherlands in the past few years is approximately 35-45-20%.

In Zoetermeer the flats in Palenstein and Driemanspolder are largely Housing Act dwellings, while the single family houses in the later neighbourhoods mostly fall into the premium and free sectors.

Photo XIII — *Zoetermeer; looking W. we see in the foreground the old village and, behind it, first the high rise development of the Driemanspolder neighbourhood and then the more varied development of the Meerzicht neighbourhood.*

Table 20 – Proportion of high rise and low rise housing in the residential neighbourhoods of Zoetermeer (in percentages).

Neighbourhood	Year of Construction	High Rise	"Stacked Low Rise" *)	Low Rise
Palenstein	1966/1975	70	6	24
Driemanspolder	1967/1975	60	20	20
Meerzicht	1963/1978	50	7	43
Buytenwegh de Leyens	1974/1982	10	30	60
Seghwaert	1978/1982	0	33	67

*) Maximum of four storeys.

In the last three neighbourhoods there is an increasing variety in the types of single family homes. In the next few years a start will be made on the construction of a fifth neighbourhood north of the Seghwaert neighbourhood and on a sixth neighbourhood south of the railway and the Hague - Utrecht motorway.

There is intensive commuting traffic to and from The Hague. At the end of 1978 Zoetermeer had an economically active population of 23,500 as against 10,000 local jobs. Efforts are being made to achieve a rapid growth in local employment, for example, by the relocation of a number of government departments from The Hague, where they are suffering from a shortage of accommodation. This will also result in counter-commuting. In order to cater for commuting as far as possible by public transport, in 1977 the first stage and, in 1979, the second (and final) stage of a new railway to The Hague came into use. The line has twelve stations in Zoetermeer itself. The maximum distance from the dwellings to one of the stations generally does not exceed 500 metres.

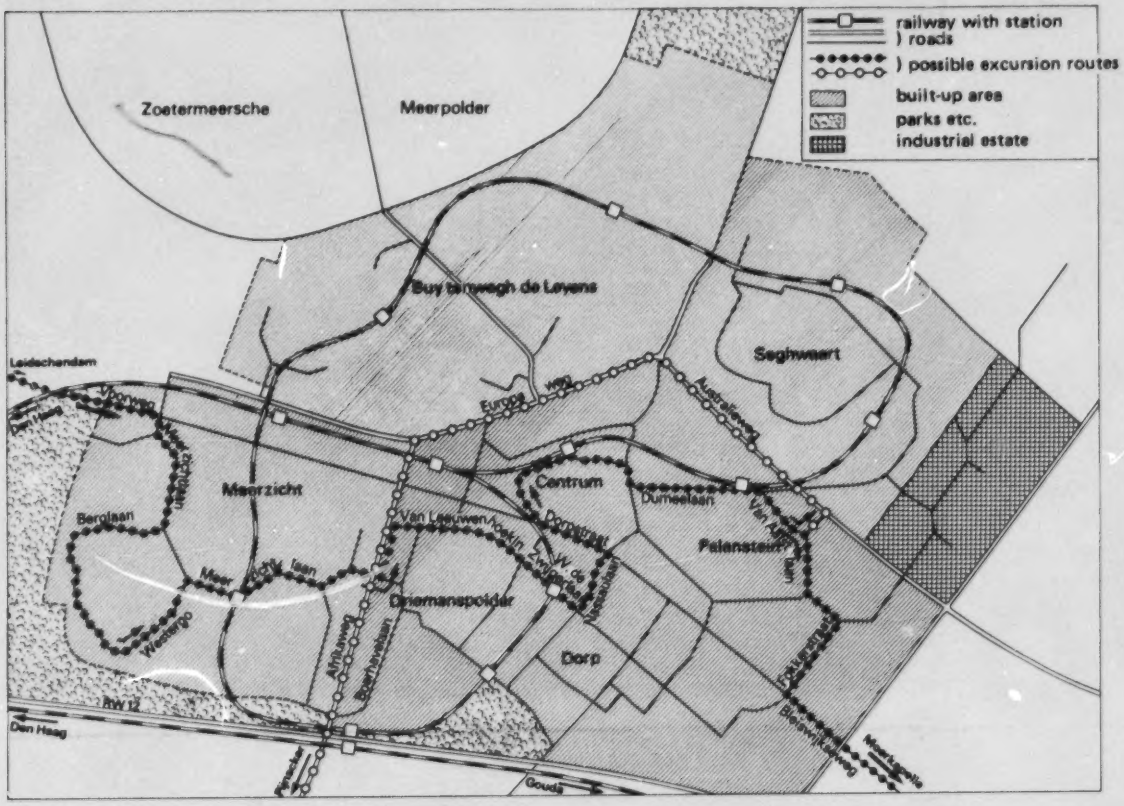

fig. 16 – *Excursion route in Zoetermeer.*

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Fig. 16 gives a suggested route for a tour of Zoetermeer. The forking of the route in the Palenstein neighbourhood relates to whether or not the alternative route via Pijnacker (described below) is followed. If desired, a simple town plan can be requested in advance from the Information and Public Relations Department of the Municipality of Zoetermeer (see address list on p. 65). It is also possible – by appointment – to pay a visit to the municipality's information centre, where there is a large model of the town and a slide-tape show about Zoetermeer can be given.

From Zoetermeer the excursion route follows the Bleiswijkseweg in the direction of Moerkapelle; then, four kilometres out of Zoetermeer, turn left towards Hazerswoude and Boskoop.

Anyone, however, wishing to complete the picture of the agricultural landscapes of the Randstad by visiting an area with extensive blocks of glasshouses, can take the following alternative route: from Zoetermeer drive S.W. to Pijnacker, from there along the railway to Berkel and then via Bergschenhoek and Bleiswijk towards Hazerswoude and Boskoop (see fig. 14). This route leads through the glasshouse area of "De Kring", which is the most important concentration of horticulture under glass in the Netherlands after the Westland.

Shortly before the road crosses the railway and the motorway you see on the right a large horticultural auction hall. Behind it is another "molengang", consisting of three windmills (length of this diversion c.20 km). Follow the road through the Hazerswoude Droogmakerij (drained lake – see IDG Bulletin, 1978-79, pp. 10-11), to Boskoop.

J – Horticultural District of Boskoop

Boskoop is also situated in a horticultural district, but one of quite a different character from the Bulb District or "De Kring". Here the emphasis is on the raising of trees and ornamental shrubs. Immediately before the water tower (right of the road) the landscape suddenly changes completely in character.

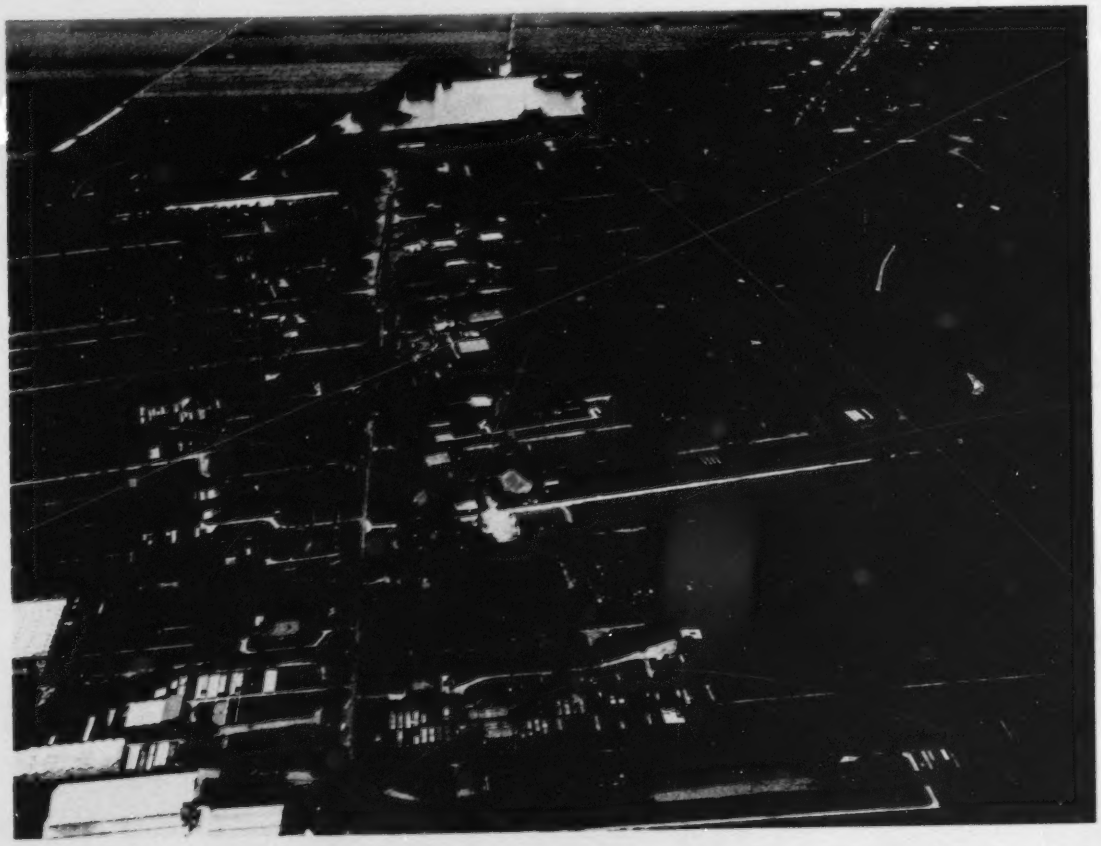

Photo XIV – *Horticulture W. of Boskoop; in the background arable farms in part of the Hazerswoude drained lake (looking W.).*

One leaves the Hazerswoude Droogmakerij, an arable farming area with relatively large holdings in a polder the floor of which lies four to five metres below sea level and consists mainly of old marine clay, and enters an area of small and narrow market gardening parcels and numerous ditches in a polder landscape lying from one and a half to two metres below sea level, with soil consisting of lowland peat. The difference in land level and soil type is explained by the fact that, in earlier times, the layers of peat several metres in thickness were removed around Hazerswoude, but not around Boskoop, fur use as fuel.

A more extensive impression of the different types of agricultural landscape in the Hazerswoude Droogmakerij and the Boskoop market gardening district may be gained from a diversion via Hazerswoude-Dorp (see route map, fig. 14, p. 38; extra distance c.3 km). Then, in Boskoop, after the bridge over the Gouwe, turn right, passing Waddinxveen, to join the A12 The Hague-Utrecht motorway. Follow the motorway towards Utrecht until the turn-off for Woerden (18 km).

K – A12 Motorway

This section shows some of the aspects of traffic and transport in the Randstad. From Boskoop to the motorway the route follows the Gouwe, part of the busy inland shipping link between Amsterdam and Rotterdam.

The bridge over the Gouwe is a notorious obstacle for the heavy traffic on the A12 motorway (c.65,000 cars a day between Gouda and Utrecht), which is why an aqueduct is under construction on the north side of the bridge for the motorway to pass under. From the motorway itself one can see a second carriageway being built on the north side. This doubling of the road between Gouda and Utrecht is necessary because of the high traffic intensity between Rotterdam/The Hague and Utrecht.

Photo XV – *Widening of the A12 motorway near Woerden. Left of the existing road, parts of the new line can be seen, filled with water where the peat has been removed. In the centre a section where a start has been made on infilling with sand.*

A complicated and time-consuming procedure had to be employed for the construction of this new motorway because of the poor bearing capacity of the subsoil. From Gouda to Woerden a layer of peat and clay more than eight metres in thickness was first largely removed, thus creating a temporary canal which flooded with groundwater (photo XV). The canal has been filled with sand, upon which, in the course of time, the road will be constructed. In order to integrate the new road with 2 x 3 traffic lanes (in the future possibly 2 x 4) as well as possible into the landscape, a landscape plan has been drawn up providing among other things, for the planting of 6,000 trees and 200,000 shrubs.

From the Linschoten/Woerden turn-off follow the signs for Woerden and, immediately before the beginning of the built-up area of Woerden, after passing the sign "Woerden/50", turn left (fig. 17). Then take the first road on the right through a commercial estate containing, inter alia, several large office buildings and a hospital. By taking the second turning left three times in succession you return to the original access road. There turn left towards Woerden over the level crossing at the end of the road and, in Woerden, follow the signs for Kamerik and Harmelen.

fig. 17 – *Excursion route in Woerden.*

L. – Woerden.

Woerden is one of the urban nuclei in the "Central Open Space" (see p. 32). The population of the municipality was 23,400 on 1st January 1979. The commercial estate south of the railways is an example of "suburbanisation of employment" (cf. p. 24). A number of firms have established themselves here since 1972, mainly from the tertiary sector. Most of them have moved from one of the large cities to the Green Heart for some of the reasons referred to on p. 24.

Apart from the existence of reasonably priced sites, one of the most attractive factors at Woerden is the location on rail and motorway at distances to the four major cities ranging from 15 km. (Utrecht) to 30 (Rotterdam) and 40 km. (The Hague and Amsterdam). Among the concerns which have established themselves up to the present time are the dispatch department of De Bijenkorf department store, the computer centre of the national banking firm "De Bondsspaarbanken", the administrative offices of the combined building trade unions, the head office of a firm of concrete products manufacturers and the "Snel" transport concern.

Partly because of this development there exists in Woerden the remarkable situation that not only – as in the majority of places in the "Green Heart" – do many people work outside the town, but also, conversely, a considerable number of people work in Woerden who are not resident there. There is therefore both outward and inward commuting, both orientated towards such major cities as Utrecht and Amsterdam. Table 21 shows that half of the economically active population of Woerden works outside the municipality, while a group of nearly half of this number travel in to work from outside Woerden.

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Table 21 – Commuting balance, Woerden, 1 Jan 1978.

Total Population of Woerden	23.055	
Economically active population		8.690
– outward commuting		4.345
+ inward commuting		2.060
= employment in Woerden		6.405

Source: ETI, Sout Holland.

From Woerden follow the road towards Harmelen and just beyond Woerden, turn left towards Kamerik and Wilnis. 1 1/2 kilometres past Wilnis turn right at the traffic lights for Vinkeveen and Hilversum.

M – Vinkeveen lakes.

From Woerden this route passes first through the open grassland landscape of the peat region of Holland and Utrecht. At a few places along the road are small recreational sites created around lakes excavated for the purpose. Past Wilnis the road suddenly descends more than four metres into the Groot Mijdrecht polder (from the next junction, where the right hand turning leads to Hilversum, the route again follows a part of the section on p. 9). Immediately before Vinkeveen, particularly along the left hand side of the road, the height difference between the two sides of the dike of the drained lake is clearly visible. Immediately beyond Vinkeveen the road passes between the Vinkeveen Lakes, which now form an important area for water sport. These lakes were also created by the removal of peat for use as fuel.

Photo XVI – *Vinkeveen lakes (between Utrecht and Amsterdam), looking North. Bottom right, a part of the village of Vinkeveen. Top left, high-rise buildings of Amsterdam (Bijlmermeer).*

The parallel "legakkers", strips of land on which the peat was dried, are still clearly visible. Because, in contravention of the regulations, these strips were made constantly narrower by removing as much peat as possible, they were eroded in many places during gales, giving rise to the large water surfaces which can be seen to the left of the road a little further along. As a result of the sucking away of sand from the bottom for such purposes as the new urban extensions of Amsterdam, the lakes are tens of metres deep in several places.

Beyond the viaduct turn left to return to Amsterdam along the A2, Utrecht – Amsterdam, motorway.

If there is still some time left the return to Amsterdam may be made via Loosdrecht, Hilversum and Bussum (this route is not shown on fig. 14).

In that case drive straight on under the viaduct of the A2 motorway towards Hilversum and, two kilometres further, after the bridges over the River Vecht, the Amsterdam-Utrecht railway and the Amsterdam-Rhine Canal, turn right towards Breukelen. After three kilometres a road leads off to the left – in the direction of Loosdrecht – along the shores of the Loosdrecht Lakes and through the village of Loosdrecht, which is completely dominated by water sports. Follow this road to Hilversum and from there follow the signs to Bussum. From Bussum Amsterdam is reached by way of the A1 motorway (extra distance arising from this diversion: c30 km).

Between Hilversum and Bussum one gains a brief impression of the forest and heath-covered Gooi Hills, which form a complete contrast with the polders. From the A1 motorway one sees in the distance on the right hand side, shortly after passing Naarden, the Holland Bridge, which connects the newest Lake IJssel polder (Zuidelijk Flevoland) with the mainland.

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3. EXCURSION DESTINATIONS ARRANGED BY THEME

(for museums, exhibitions etc., see the list on p. 64).

3.1. Town planning aspects of the major cities.

- Amsterdam – see the excursion route description above, points A-C (see also "Pictorial Atlas of the Netherlands", pp. 17 and 32).
- Rotterdam – complete reconstruction of the centre following the destruction of the Second World War (see IDG Guide to the South West Netherlands and "Pictorial Atlas of the Netherlands", p. 33).
  At present much new building is taking place on "empty spaces" in the city, including the sites of old dock basins in the inner city (photo XVII).
- The Hague – government buildings in the centre (see "Pictorial Atlas of the Netherlands", p. 14).
  Interesting new development around the new Central Station, including the covered "Babylon" shopping centre and the bus and tram station on a platform above the platforms of the railway station.

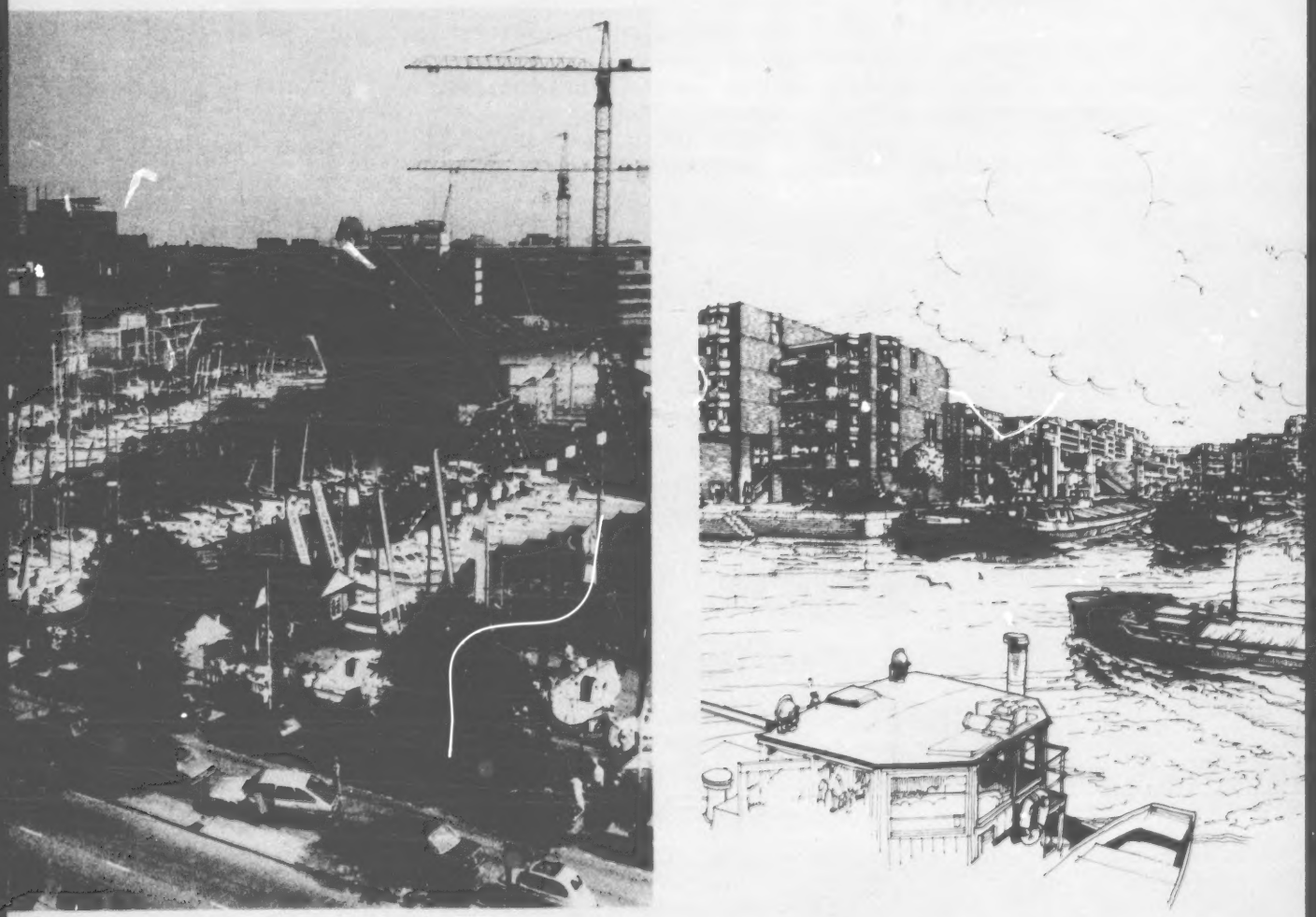

Photo XVII – *Housing around old port basins in Rotterdam, with an artist's impression of the result.*

- Utrecht – "Hoog-Catharijne" urban renewal project in the quarter around the Central Station: covered complex containing shops, offices, trade fairs building, sport hall, residential flats, multi-storey car park. Strict segregation of the vehicle traffic and pedestrians (see, for example, "Pictorial Atlas of the Netherlands, p. 16). There is an information centre (model, film etc.; see the list on p. 64).

- Apart from Amsterdam, The Hague and Utrecht, town centres of historical interest are to be found in Delft, Dordrecht, Gouda, Haarlem, and Leiden, among others.
  In each of these towns information is available from the municipal information departments and local tourist offices (VVV's – see the list on p. 64).

3.2. Growth centres

A description of Zoetermeer is given on p. 48 of the excursion route description. In the list of addresses on p. 64 are to be found the addresses of the municipal information departments of all the currently designated growth centres in the Randstad.

Besides these, the development of Maarssen, situated north west of Utrecht, is of interest. This rapidly growing district is sometimes described as an "illegal" growth centre. According to the proposals in the sub-regional plan of 1968 for the Vecht and Lakes District, Maarssen was to accomodate only the population overspill from the area of the southern Vecht and expand into a new town with 30,000 inhabitants by 1985. Because the municipality has begun to build dwellings at a very fast rate in the Maarssenbroek district (in order to avoid loss of interest on land which has already been acquired), many people from Utrecht and Amsterdam have also settled in Maarssenbroek. Thus, contrary to the plans of the province and the central government, Maarssen functions in fact as a growth centre; it already had 28,185 inhabitants on 1st January 1980.

3.3. Manufacturing industry

Manufacturing industry is to be found in all the urban areas of the Randstad. Particularly noteworthy areas or complexes include the following:

- Zaan district: one of the older industrial districts of the Netherlands, where the rise of factory industry – from about 1600 – shows links with shipping (photo XVIII).
  Industry to serve shipping (shipbuilding, sailmaking etc.) was complemented by the processing of raw materials and semi-manufactures imported from overseas (timber, train oil, tropical products). The most important source of energy was the wind. The finished products of the industries were largely re-exported. Important branches of industry at the present time, such as food products and woodworking, stem from this development (see also IDG Bulletin, 1976-1977, pp. 16-17). The "Zaanse Schans" open air museum gives a picture of the history of industry in the Zaan district.

  Other industries with a tradition which goes back to long before the Industrial Revolution include diamond cutting in Amsterdam and the manufacture of the famous Delft pottery. This also applies in a sense to the industries based on agriculture, such as cheese manufacturing, except that here there has been a clear process of enlargement of scale: cheese making on the farms has almost everywhere given way to manufacture in dairies.

- Hoogovens: after the Industrial Revolution – which made its influence felt quite late in the Netherlands – large industrial complexes arose particularly in the neighbourhood of deep navigable waterways. In 1917 it was decided to build a Dutch blast furnace complex at Velsen, at the entrance to the North Sea Canal photo XIX), and in 1936 the first Dutch oil refinery (Shell) was opened at Pernis, west of Rotterdam.

  The blast furnaces expanded into a large iron and steel complex (in spite of the fact that the Netherlands has no iron ore deposits and, since 1975, no longer produces coal). In 1972 a merger took place with the West German steel firm of Hoesch to create the new Estel concern (see IDG Bulletin, 1976-77, pp. 19-21).

- Europort: after the war the refinery near Rotterdam was followed by four others in the Europort area. Together with a series of other concerns – chemicals, food products, shipbuilding, etc. – there arose here the greatest industrial concentration in the Netherlands.

Photo XVIII – *The Zaan district looking N. On the island in the Zaan a timber yard and, behind it, adjoining the locks, the centre of Zaandam (municipality of Zaanstad).*

A good impression may be gained of this area by following the hexagonal signs of the Royal Netherlands Touring Club (ANWB) bearing the words "Rotterdamse Havenroute" (cf. IDG Guide for the South-West Netherlands, pp. 39-44).
A map with a detailed route description (in Dutch) is obtainable (price 1 guilder 90 cents) from the ANWB in The Hage and the Tourist Office (V.V.V.) in Rotterdam (see adress list).

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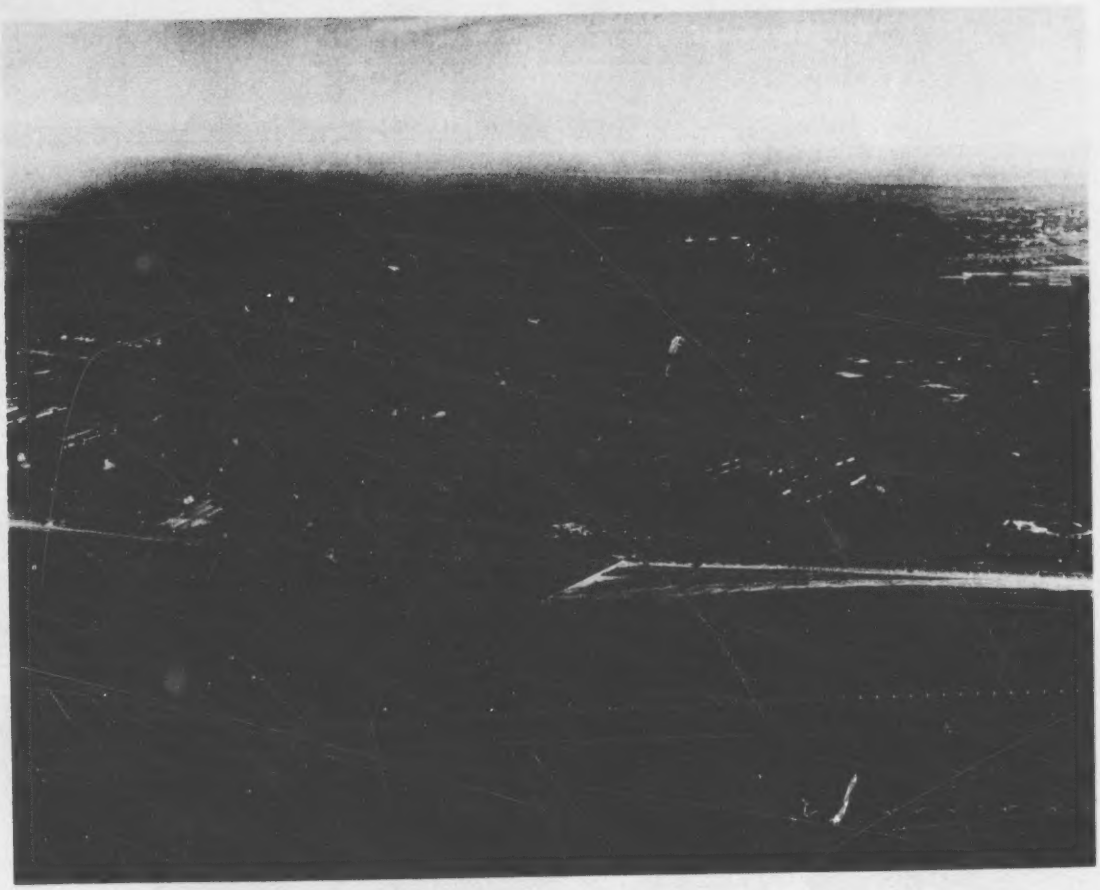


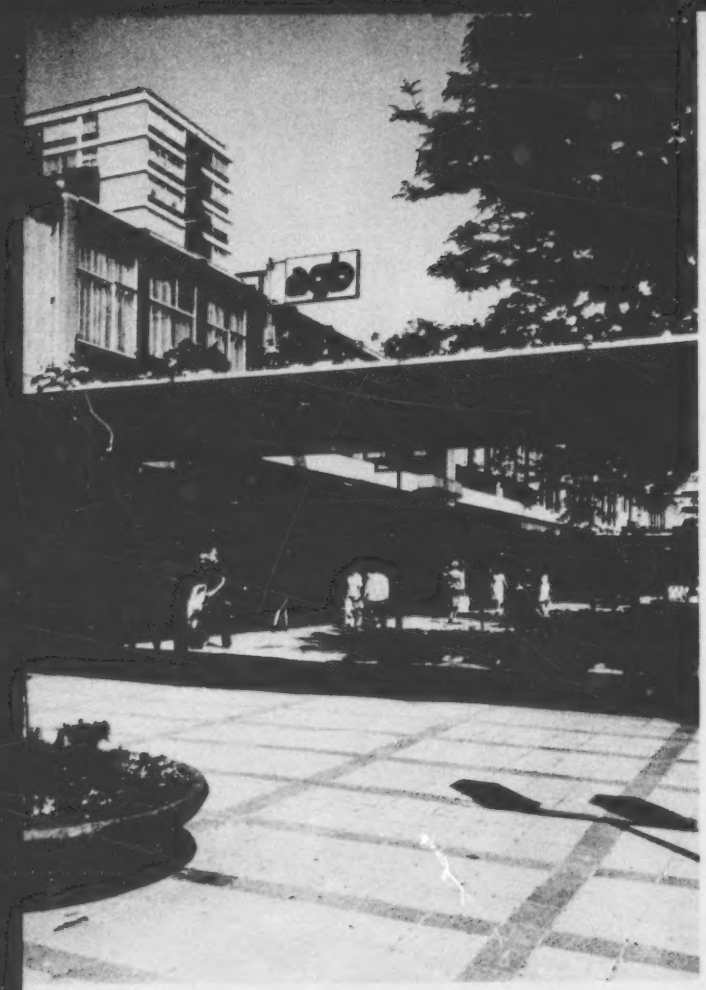
Photo XIX – *The entrance to the North Sea Canal with, in the centre, the shipping locks, left of them the blast furnaces and steel works and, right, IJmuiden with the fishing port.*

– Other, smaller, industrial concentrations are to be found mainly along the navigable inland waterways, such as the Holland IJssel, Old Rhine, Gouwe, Amstel, and the Amsterdam-Rhine Canal.

3.4. Tertiary sector, traffic and transport.

– Mention was already made on p. 45 of the large "Kronenburg" *office complex* in Amstelveen. Another large concentration of offices is to be found in Rijswijk (in the southern part of The Hague agglomeration).

– The "Hoog Catharijne" project in Utrecht and the "Babylon" complex in The Hague were referred to as striking examples of *shopping centres* (p. 56/57). To these may be added the "In de Bogaard" centre in Rijswijk and "Leidschenhage" in Leidschendam (in the north-eastern part of the Hague agglomeration), as well as the "Lijnbaan" on the right bank and the "Zuidplein" on the south bank of the Meuse in Rotterdam. The Lijnbaan in the rebuilt centre of Rotterdam was a centre of attention in the 1950's as one of the first traffic-free shopping centres in Europe. It formed the model for many such centres in other countries (photo XX).



Photos XX/XXI — *The post-war shopping centre of the Lijnbaan in Rotterdam and a pedestrianised shopping street in the centre of The Hague.*

In recent years many shopping streets in the old town and city centres were transformed into traffic-free pedestrian precincts. In the narrow streets of the numerous historic towns, in particular, this brought a considerable improvement (photo XXI).

The new phenomenon of out-of-town shopping centres — large shopping centres with highly competitive prices and provided with extensive car parks, situated on a motorway some distance out of town — has remained limited in the Netherlands to the "Maxis" centre near Muiden, on the A1, Amsterdam-Amersfoort, motorway.

The authorities regard this trend as undesirable, both on planning and traffic grounds, and try to oppose the phenomenon as much as possible.

- A visit to, or a boat tour of, the *major ports* of Rotterdam and Amsterdam is to be recommended. In Amsterdam a tour of the canals is generally combined with a trip through the harbour (see list of addresses). Fishing ports are to be found at IJmuiden and Scheveningen, among other places.
- The network of waterways, both for seagoing and inland shipping, possesses many interesting features, particularly where there are extensive or complex civil engineering works. Examples are the large shipping locks in the North Sea Canal at IJmuiden (see photo XIX), the complex of waterways in Europort with strict segregation between seagoing and inland traffic, the Amsterdam-Rhine Canal, which has recently been widened and deepened again and the Storm Surge Barrier in the Holland IJssel at Krimpen aan de IJssel (east of Rotterdam: for the protection of the low-lying polders against flooding).
- The numerous natural and artificial waterways form so many obstacles to road traffic and necessitate the building of expensive *bridges* and *tunnels*. Spectacular bridges are to be found, for example, in and east of Rotterdam.

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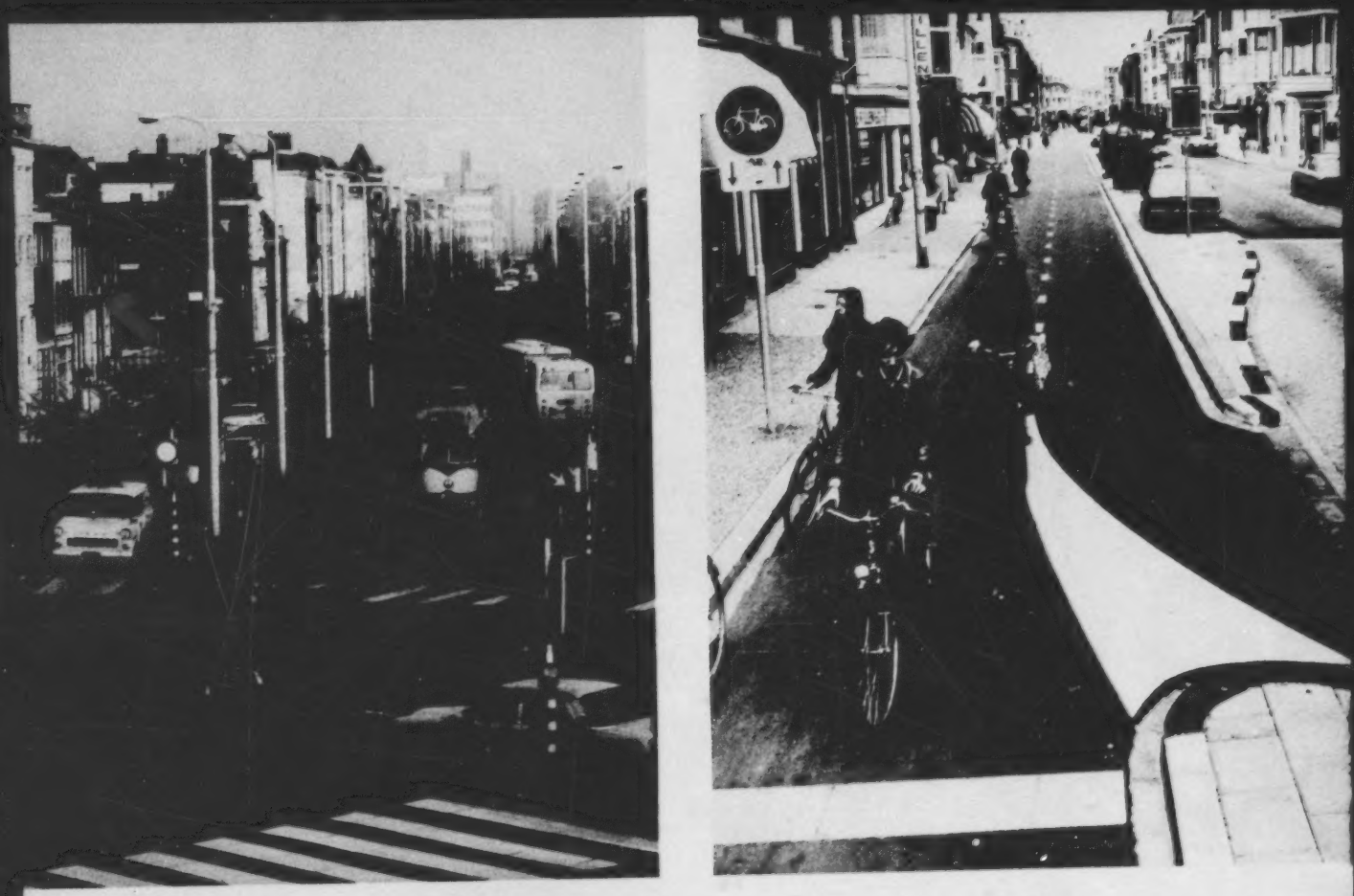

Photos XXII/XXIII — *New solutions for traffic problems in old cities: left, a reservation for public transport in The Hague (Prinsegracht — a canal formerly occupied the space now used by the trams and buses); right, a free lane for cyclists, also in The Hague.*

In Rotterdam also the first cross-river tunnel for road traffic – the Maas Tunnel – was opened during the Second World War. After the war various other tunnels were constructed in the Rotterdam area and under the North Sea Canal, including some for rail traffic (rail tunnel at Velsen, metro tunnel in Rotterdam).

– Another striking structure is the aqueduct in the ring canal of the Haarlemmermeer, under which passes the A4, Amsterdam-The Hague, motorway (see also IGD Bulletin, 1978-79, pp. 51-54). The Schiphol railway, the Zoetermeer-The Hague suburban railway and the Amsterdam-Bijlmermeer metro link have already been mentioned in this guide as new developments in the sphere of *rail traffic.*

An underground railway also exists in Rotterdam, linking the centre with the south of the city and continuing above ground from South Rotterdam to Hoogvliet. Moreover, an express tram line is under construction from Utrecht to the growth centre of Nieuwegein and will come into use in 1982. No further construction of underground urban railways is contemplated. This is because the various cities in the Randstad are too small to justify the construction of full-blown metro networks. New rail links within the agglomerations now generally take the form of express tramways. As far as possible the trams make use of tramway reservations, for example, in the central reservations of motorways or, where necessary, on viaducts or in tunnels (photo XXII). Where possible, space is also reserved for cyclists (photo XXIII).

3.5. Water supply, environment.

As described, for example, in the "Compact Geography of the Netherlands" (pp. 16-17) and in the IDG Bulletin 1978-79 (pp. 15-20), the *supply of drinking water* is a cause of great concern in the Netherlands.

In addition to the usual sources of pollution, such as towns, agriculture and industry, water quality here is also threatened by the penetration of salt from the sea. In large parts of the polderland there is little or no groundwater of good quality available. In broad outline two solutions are possible:

- make use of groundwater from the dunes; the underground freshwater supply in the dunes is at present supplemented with water brought by pipeline from the Rhine and Meuse (after purification, of course!). The Amsterdam Dune Water Company was the first to tap this source in 1853 and has been followed by Haarlem, Leiden and The Hague, among others.
  The dunes supplying water to Amsterdam are situated southwest of Haarlem, and those supplying The Hague, west of Wassenaar (for addresses see the list on p. 64).

- storage of relatively clean river water in reservoirs during periods of high water levels for use during periods of low water levels when there is a higher concentration of impurities. This method is employed in Rotterdam, where water from the Meuse (less polluted than the Rhine) is stored in three large reservoirs in the Biesbos and conveyed by pipeline to two treatment plants at Kralingen and Berenplaat, in and near Rotterdam, respectively. All three undertakings – Biesbos, Kralingen, Berenplaat – may be visited (see list of addresses).

The area around Rotterdam also presents great problems in the sphere of *air pollution.* Together with the prevailing winds, the situation of the petro-chemical industries west of the city is the chief cause of the pollution. The Rijnmond Board – a regional administrative body in which 23 municipalities situated around Rotterdam and the New Waterway collaborate – therefore decided to instal 31 automatic sensors, which transmit the SO_2 content of the air to a "Centrale Meld- en Regelkamer" (Recording and Regulating Centre), which also deals with complaints from the public reported by telephone.

In the event of unfavourable measurements being recorded or of unfavourable weather conditions which might lead to these, warnings are issued to industries. The latter often collaborate voluntarily, for example, by temporarily halting processes which give rise to obnoxious smells, by restricting the emission of gasses or switching over to fuel poor in sulphur. The "Centrale Meld- en Regelkamer" may be visited in certain instances on application to the Information Department of the Rijnmond Board.

Again on the initiative of the Rijnmond Board, an extremely modern waste treatment plant has been built in the Botlek area (west of Rotterdam). It burns both domestic and industrial waste and uses the heat so obtained to produce distilled water and electricity (see IDG Guide to the South-West Netherlands, p. 41). It is possible to visit the plant by appointment (slide presentation in Dutch and English, and conducted tour).

3.6. Agriculture

In the earlier part of this guide – both in part A and the description of excursions – attention has already been drawn to the great variety of agricultural land use in the Randstad region: arable farming in the drained lakes, dairying in the peat polders, bulb-growing where the old dunes have been dug away, horticulture under glass in the Westland and De Kring, raising of trees and ornamental shrubs around Boskoop. Another famous area of horticulture under glass, which specialises particularly in the growing of cut flowers, is situated around Aalsmeer, south west of Amsterdam. Many glasshouses are also to be found in the area around Vleuten and De Meern, west of Utrecht. Some of these areas are textbook examples both of the intensity of land use in the western Netherlands – the glasshouse holdings measure on average no more than one hectare – and of the struggle for scarce space. With regard to the latter, the transition from The Hague agglomeration to the Westland deserves special mention (photo XXIV).

With the help of the Foundation for Public Relations in Agriculture and Horticulture addresses may be obtained of farms where visits may be made. It is also interesting to watch the course of events in one of the large co-operative auctions. The flower auction at Aalsmeer is the one best organised for visitors, including those from other countries. It is at its busiest at between 7 and 9 a.m. (see the list of addresses).

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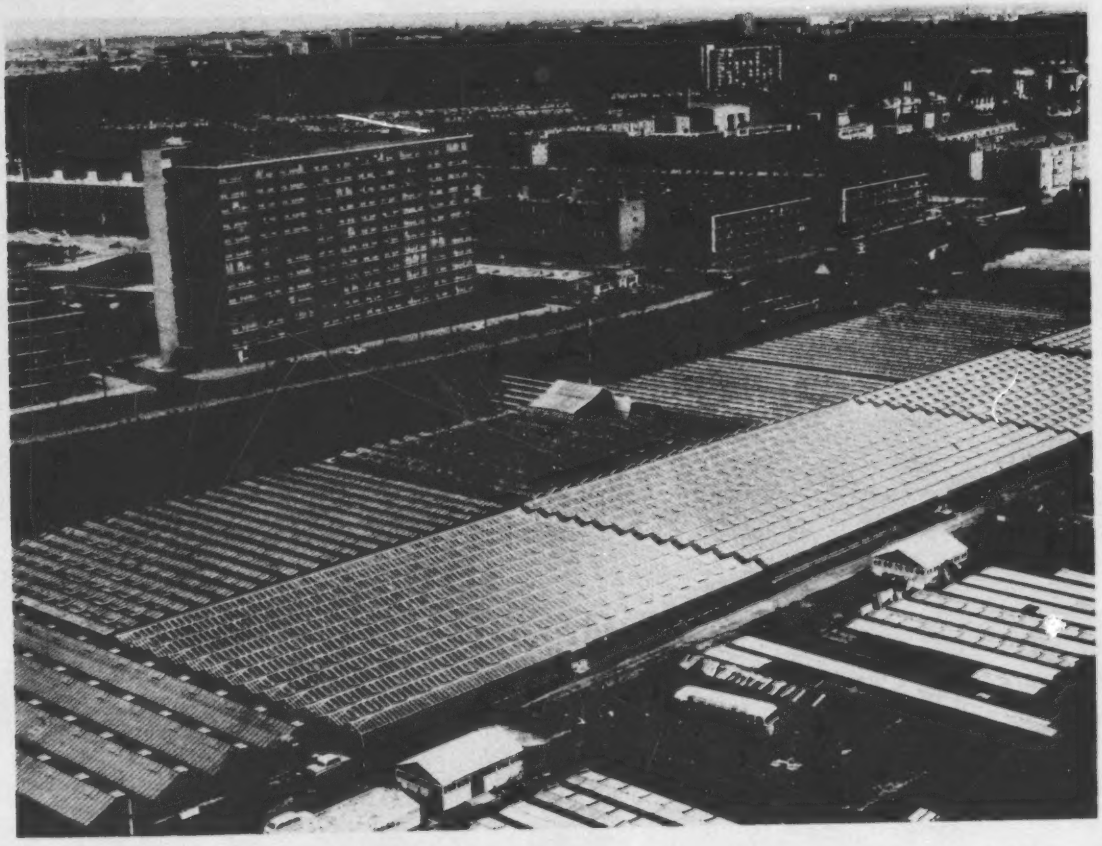

Photo XXIV — *Struggle for space in the Randstad Holland: blocks of flats and glasshouses on either side of a road in the south of The Hague agglomeration (the glasshouses in the foreground have since had to give way to further housing development).*

3.7. Landscapes, recreation

The various landscape types within the Randstad region — push moraines of East Utrecht and the Gooi, old and new dunes, various types of polder — have also been discussed above.

In order to give a more complete picture, including for example the fauna and flora, of the different landscapes, *visitors' centres* have been opened by the nature conservations organisations. Examples are the Kennemer dunes, north west of Haarlem, and the Corversbos near Hilversum (the Gooi). A picture of how a polder works — especially as it was in earlier times — is given by the famous complex of windmills at Kinderdijk (east of Rotterdam) and the former "Cruquius" steam pumping engine for the Haarlemmermeer, near Haarlem (see list of addresses).

Important areas for *open air recreation* include the coast (beach and dunes), with such resorts as Scheveningen, Noordwijk, Hook of Holland, Katwijk and Zandvoort, the lakes (Loosdrecht Lakes, Vinkeveen Lakes, Nieuwkoop Lakes, Reeuwijk Lakes, De Kaag Lakes, Westeind Lakes etc.), and the woods and heaths of the Utrecht Hills and the Gooi.
Recreational areas of a more artificial kind include the Amsterdam Wood (already described), the Rotte Lakes (north east of Rotterdam) and recreational projects currently being laid out in buffer zones, such as Spaarnwoude (between Amsterdam and Haarlem) and Midden Delfland (between Rotterdam and Delft). Of these areas the Amsterdam Wood and Spaarnwoude have visitors' centres (see list of addresses).

4 – ADDRESSES:

Museums, exhibitions, information departments etc. arranged in the same categories as in Section B.3.

Place and Institution	Opening Times	Address and telephone number
4.1. Towns		
Amsterdam		
– Historical Museum (urban history)	Mon-Sat 9.30-17, Sun 13-17	Kalverstraat 92, 1012 PH Amsterdam 020-255822
– Town Planning Department; exhibition on urban development	Mon-Fri 12.30-16.30 Thurs 18-21 (by appointment only)	Keizersgracht 440, 1016 GD Amsterdam, 020-222962
– V.V.V. *)	–	Rokin 5, 1012 KK Amsterdam, 020- 266444
Delft		
– Municipal Information Department	–	Markt 87, 2611 GS Delft, 015-13311
– V.V.V.	–	Markt 85, 2611 GS Delft, 010-126100
Dordrecht		
– Municipal Information Department	–	Spuiboulevard 300, 3311 GR Dordrecht, 078-130000
– V.V.V.	–	Stationsweg 1, 3311 JW Dordrecht, 078-132800
Gouda		
– Municipal Information Department	–	Markt 1, 2801 JG Gouda, 01820-138000
– V.V.V.	–	Markt 36, 2801 JK Gouda, 01820-13298
The Hague		
– Municipal Information Centre	Mon-Fri 9-17, Sat 10-16	Groenmarkt 7, 2513 AL The Hague, 070-123911
– V.V.V.	–	Gevers Deynootplein, Scheveningen, 070-546200
Haarlem		
– Municipal Information Department	–	Grote Markt 2, 2011 RD Haarlem, 023-319060
– V.V.V.	–	Stationsplein 1, 2011 LR Haarlem, 023-319059
Leiden		
– Municipal Information Department	–	Stadhuisplein 1, 2311 EJ Leiden, 071-145344
– V.V.V.	–	Stationsplein 210, 2312 AR Leiden, 071-146846
Rotterdam		
– Municipal Information Centre (films, slide series etc.)	Mon-Fri 9-17, (by appointment only)	Coolsingel 42, 3011 AD Rotterdam, 010-172182
– "De Dubbelde Palmboom", Historical Museum (Urban history)	Mon-Sat 10-17 Sun 11-17	Voorhaven 12, 3024 RM Rotterdam, 010-761533
– V.V.V.	–	Stadhuisplein 19, 3012 AR Rotterdam, 010-136000
Utrecht		
– Municipal Information Centre	Mon 13-16.30 Tues-Fri 9-16.30 (by appointment only)	Vredenburg 90, 3511 BD Utrecht, 030-328511
– Hoog Catharijne; Information Centre (urban renewal project; film etc.)		Hoog Catharijne, Utrecht, 030-310617
– V.V.V.	–	Vredenburg 90, 3511 BD Utrecht, 030-314132
4.2. Growth Centres		
Alkmaar		
Municipality, Information Dept.	–	Doelenstraat 441, 1811 KZ Alkmaar, 072-143636
Almere		
– Southern IJsselmeerpolders Authority, Information Dept.	–	Town Hall, Almere, 03240-10194

*) V.V.V. = Vereniging voor Vreemdelingenverkeer/Tourist Information.

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Place and Institution	Opening Times	Address and telephone number
Capelle aan de IJssel		
Municipality, Information Dept.	–	Town Hall, Slotplein 1, 2902 HP Capelle a/d IJssel, 010-506655
Haarlemmermeer		
Municipality, Information Dept.	–	Hoofdweg 671, 2731 BC Hoofddorp, 02503-18144
Hellevoetsluis		
Municipality, Information Dept.	–	Oostzanddijk 26, 3221 AL Hellevoetsluis, 01883-2300
Hoorn		
Municipality, Information Dept.	–	Muntstraat 6, 1621 GB Hoorn, 02290-31234
Houten		
Municipality, Information Dept.	–	Utrechtseweg 8, 3991 LA Houten, 03403-1944
Huizen/Blaricum		
Municipality of Blaricum. Information Dept.	–	Torenlaan 50, 1261 GE Blaricum, 02153-15351
Lelystad		
Municipality, Information Dept.	–	Stadskantoor, 8224 AD Lelystad, 03200-26844
Nieuwegein		
Municipality, Information Dept.	–	Town Hall, Raadstede, 3433 ZA Nieuwegein, 03402-37676
Purmerend		
Municipality, Information Dept.	–	P.O.Box 15, 1440 AA Purmerend, 02990-20851
Spijkenisse		
Municipality, Information Dept.	–	Koningin Julianaplein 1, 3201 CH Spijkenisse, 01880-19111
Zoetermeer		
Municipality, Information Dept.	–	Dorpsstraat 10, 2712 AK Zoetermeer, 079-169966
4.3. Industry		
Amsterdam		
– Diamond Information Centre	–	Room 405, Wibautstraat 12, 1091 GM Amsterdam, 020-930590
Koog aan de Zaan		
– Windmill Museum	Tues-Sun 14-17	Museumlaan 18, 1541 LP Koog aan de Zaan, 075-215029
Rotterdam		
– Rijn-Schelde/Verolme, P.R. Dept.	–	P.O.Box 1425, 3000 BK Rotterdam, 010-142811
– Shell Nederland B.V.	–	Hofplein 20, 3032 AC Rotterdam, 010-696265
– Unilever N.V. P.R. Dept.	–	Burg. 's Jacobplein 1, 3015 CA Rotterdam, 010-645911
Velsen		
– Hoogovens IJmuiden B.V.	–	Kesslerplein 1, Velsen, 02510-93466
Zaandam		
– De Zaanse Schans (village with traditional Zaan timber buildings and various small museums)	Village freely accessible; museums; 10-17	Zaanse Schans, Zaandam
4.4. Tertiary Sector, Traffic and Transport		
Amsterdam		
– Municipal Port Department	–	Havengebouw, De Ruyterkade 7, 1013 AA Amsterdam, 020-221201
– Schiphol International Airport, P.R. Dept.	–	P.O.Box 7501, 1117 ZG Schiphol Centrum, 020-517237
– Aviodome, National Aeronautical Museum	10-17	Schiphol, Amsterdam, 020- 173640
– Netherlands Nautical Museum	Mon-Sat 10-17, Sun 13-17	Kattenburgerplein 1, 1018 KK Amsterdam, 020-254175
– Boat trips through canals and harbour	throughout the year	o.a. Rederij P. Kooy, Oude Turfmarkt 0/125, 1012 GC Amsterdam, 020-233810

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Place and Institution	Opening Times	Address and telephone number
Rotterdam		
– Municipal Port Department (films, slide series etc.)	(by appointment only)	Europoint III, Galvanistraat, 3029 AD Rotterdam, 010- 896911
– Prins Hendrik Maritime Museum	Mon-Sat 10-17, Sun 11-17	Burg. 's Jacobplain 8, 3015 CA Rotterdam, 010-361044
– Boat trips round the port	throughout the year	Spido Havendienst, Willemskade 14, 3016 DK, Rotterdam, 010-171911
Sliedrecht		
– Dredging Museum	Tues-Sat 14-17	Molendijk 204, 3361 ER Sliedrecht, 01840-4545
Utrecht		
– Netherlands Railways Museum	Tues-Sat 10-17, Sun 13-17	Johan van Oldenbarneveldtlaan 6, 3581 XZ Utrecht, 030-318514
– Netherlands Railways Educational Information Dept.	–	Moreelsepark 1, 3511 EP Utrecht, 030-353630
Vlaardingen		
– Sea Fisheries Museum	Mon-Fri 10-17, Sun 14-17	Westhavenkade 53, 3131 AG Vlaardingen, 010-348722
4.5. Water Supply, Environment		
Amsterdam		
– Municipal Water Supply Undertaking	–	Condensatorweg 54, 1014 AX Amsterdam, 020-820862
– Visitor's centre in dune catchment area (water catchment and natural history)	9-17	Vogelenzangseweg 21/b, 2114 BA Vogelenzang, 023-246781
The Hague		
– Dune Water Supply	–	Buitenom 18, 2512 XA, The Hague, 070-624901
Rotterdam		
– Municipal Water Supply Undertaking: – Biesbos Reservoirs – Berenplaat Treatment Works – Kralingen Treatment Works	(by appointment only)	(office) Galvanistraat 15, 3029 AD Rotterdam, 010-896955
– Rijnmond Board: Reporting and Regulating Centre	(by appointment only)	Vasteland 96/104, 3011 BP Rotterdam, 010-111320
– Rijnmond Waste Plant, PR Dept. (Botlek)	(by appointment only)	Prof. Gerbrandyweg 10, 3197 KK, Botlek, 01819-14111
Voorburg		
– National Water Supply Instistute	–	Nieuwe Havenstraat 6, 2272 AD Voorburg, 070-694251
4.6. Agriculture		
Aalsmeer		
– Flower Auction	Mont-Sat c.8-11	Legmeerdijk 313, 1431 GB Aalsmeer, 02977-34567
's-Gravenzande		
– Westland-Zuid Auction Hall	(by appointment only)	Gasthuislaan 3, 2691 AE 's-Gravenzande, 01748-3961
The Hague		
– Central Bureau for Horticultural Auctions in the Netherlands	–	Javastraat 80, 2585 AS The Hague, 070-469474
– Foundation for Public Relations in Agriculture and Horticulture	–	Het Kleine Loo 440, 2592 CL The Hague, 070- 835704
Limmen (NH)		
– Bulb growing Museum	Mon-Fri 10-12 and 14-16	Düsseldorperweg 64, 1906 AL Limmen, 02205-1950
Naaldwijk (Westland)		
– Experimental Station for the Cultivation of Vegetables and Fruit under Glass	–	Zuidweg 38, 2671 MN Naaldwijk, 01740-26541

Place and Institution	Opening Times	Address and telephone number
4.7. Landscape, Open Air Recreation		
Amsterdam		
– Amsterdam Wood, Wood Museum	10-16 (from mid Oct to Easter closed on Thursdays)	Amsterdam Wood, Koenenkade, 020-431414
's-Graveland		
– Society for the Conservation of Nature Reserves in the Netherlands	–	Noordereinde 60, 1243 JJ 's-Graveland, 035-62004
The Hague		
– Foundation for Recreation	–	Statenplein 1, 2582 EW The Hague, 070-500100
Haarlemmermeer		
– Cruquius Museum (in former steam pumping station; history of Haarlemmermeer)	Apr-Sept 9-17, Sat-sun 10-16, Oct-Nov 9-16, Sat-Sun 10-16, Dec-Mar: by appointment only	Cruquiusdijk 32, 023-285704
Hilversum		
– Corversbos Visitors Centre	–	Vaartweg 202, 1217 SZ, Hilversum, 035-17886
Kinderdijk		
– Windmills	Apr-Oct, Mon-Sat 9.30-17.30	near Alblasserdam, 01859-4118
Overveen		
– Kennemer Dunes, National Park Visitors' Centre	15 Apr-15 Sep 9-16.30 16 Sep-14 Apri Sat-Sun 9-16.30	Militairenweg 4, 2051 EV, Overveen, 023-271871
Spaarnwoude		
– Crayenstein Information Centre	Apr-Oct Sat 13-17 Sun 10-18	Machineweg 1, 1165 NB Halfweg, 02907-2444
– Spaarnwoude Recreational Board	–	Kerkweg 4, 2064 KP Spaarndam, 023-382424
Wassenaar		
– Meyendell Visitors' Centre	May-Oct: 10-16 (exc. Tues) Nov-Apr: 10-16 (exc. Tues, Weds a.m. and Sat)	Meyendellseweg 38, 2243 GN Wassenaar, 01751-17276

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Institution	Address	Telephone No.
4.8. General		
• ANWB, Royal Netherlands Touring Club	Wassenaarseweg 220, 2596 EC The Hague	070-264426
• Central Bureau for Statistics (CBS)	Prinses Beatrixlaan 428, 2273 XZ Voorburg	070-694341
• Government Service for Land and Water Use	Griffioenlaan 2, 3526 LA Utrecht	030-859111
• Information and Documentation Centre for the Geography of the Netherlands (IDG)	Heidelberglaan 2, PO Box 80.115, 3508 TC Utrecht	030-531378
• Royal Netherlands Geographical Society (KNAG)	Linnaeusstraat 2A, 1092 CK Amsterdam	020-924949
• Ministry of Culture, Recreation and Social Work (CRM) Information Dept.	Steenvoordelaan 370, 2284 CP Rijswijk	070-949233
• Ministry of Economic Affairs, Information Dept.	Bezuidenhoutseweg 151, 2594 AC The Hague	070-814111
• Ministry of Agriculture and Fisheries, Information Dept.	Bezuidenhoutseweg 73, 2594 AG The Hague	070-793911
• Ministry of Transport and Water Affairs, Information Dept.	Plesmanweg 4, 2597 JG The Hague	070-747474
• Ministry of Health and Environmental Hygiene, Information Dept.	Dr. Reijersstraat 8-12, PO Box 439, 2260 AK Leidschendam	070-209260
• Ministry of Housing and Physical Planning, Information Dept.	Van Alkemadelaan 85, 2597 AC The Hague	070-264201
• Provincial Planning Dept. North Holland	J.J. Hamelinkstraat 4-6, 2033 LM Haarlem	023-319390
• Provincial Planning Dept. Utrecht	Australiëlaan 16, 3526 AB Utrecht	030-887811
• Provincial Planning Dept. South Holland	Koningskade 2, 2596 AA THe Hague	070-264111
• IJsselmeer Polders Development Authority, Information Dept.	Zuiderwagenplein 2, 8224 AD Lelystad	03200-99111
• National Geological Service	Spaarne 17, 2011 CD Haarlem	023-319362
• Rijnmond Board, Information Dept.	Vasteland 96-104, PO Box 23073 3001 KB Rotterdam	010-111320
• State Printing and Publishing Company	Chr. Plantijnstraat, 2515 TZ The Hague	070-789911
• Soil Mapping Foundation	Staringgebouw, Marijkeweg 11, 6709 PE Wageningen	08370-19100
• Topographical Service	Westvest 9, 2611 AX Delft	015-120846

The IDG offers no assitance in finding accommodation. Inquiries may be addressed to the following organisations, among others:

• local Tourist Information Offices (V.V.V.)	— see list of addresses 4.1., p. 64).	
• Provincial V.V.V. North Holland	Rokin 9, 1012 KK Amsterdam	020-221016
• Provincial V.V.V. Utrecht	Maliesingel 46, 3581 BM Utrecht	030-328839
• Provincial V.V.V. South Holland	Markt 85a, 2611 GS Delft	015-126100
• Netherlands Youth Hostels Association	Prof. Tulpstraat 4, 1018 HA Amsterdam	020-264433

5. – MAPS, SLIDE SETS

Wall Maps

Wolters-Noordhoff, Groningen – Regional Map of the Randstad Holland (110 x 140 cm), price H.Fl. 129.25.
P.O. Box 58, 9700 MB Groningen.

Topographic Maps

Maps have been published by the Topographical Service for the whole of the Randstad region at the scales of 1:10,000, 1:25,000 and 1:50,000.

Prices:	1:10,000 (printed only in grey) .		H.Fl. 13.10
	1:25,000 and 50,000	printed in grey	H.Fl. 4.70
		colour printed	H.Fl. 8.40

See sheet index on p. 72.
Topographical Service, Westvest 9, 2611 AX Delft.

Road and Tourist Maps

Royal Netherlands Touring Club, ANWB, The Hague
Wassenaarseweg 220, 2596 EC The Hague.

- the whole of the Randstad region appears on the "Midden-Nederland" sheet of the ANWB road map, scale 1:200,000, price H.Fl. 4,10.
- parts of the Randstad region appear on the "Randstad West" (western half) and "Utrecht" (eastern half) sheets of the ANWB tourist maps, scale 1:100,000, price H.Fl. 5.75 per sheet.

Plans of Towns

The Public Works Departments of the cities of Amsterdam, Rotterdam, The Hague and Utrecht publish comprehensive series of maps, including topographic maps at the scales of 1:5,000 and 1:10,000.
Plans of nearly all the towns in the Randstad region have been issued by Falkplan/CIB. They are generally obtainable from local bookshops, local V.V.V. offices or from Falkplan in The Hague (Zichtenburglaan 52, 2544 EB The Hague).

Miscellaneous

Several of the institutions mentioned in Appendix 1 publish local or regional maps. Examples are the Rotterdam/Europort port district (Municipal Port Department of Rotterdam), the Amsterdam Wood (Public Works Department, City of Amsterdam), and the Spaarnwoude recreational zone (Recreatieschap Spaarnwoude).

Sets of Colour Slides

FIBO colour slide series

- Randstad Holland (40 slides)
- Amsterdam (26)
- Rotterdam (25)
- The Polderland (20)
- The Coastal Dunes (20)
- The Coast (60)
- The Low Netherlands (60)
- Our Water Supply (15)
- Our Waterways (40)
- The Rhine III (from Bonn to the sea; 25)

Prices vary from H.Fl. 20.– to H.Fl. 60.–, depending upon the number of slides.

FIBO Beeldonderwijs, Utrechtseweg 66-68, 3704 HE Zeist.

APPENDIX – LITERATURE CONSULTED OR RECOMMENDED

Amsterdam, Municipal Port Department
- Tables of Port Statistics (annual).

Amsterdam, Public Works Department
- Amsterdam, urban development in a nutshell; 16 pp.
- Amsterdam, urban development; origin, physical development, structure, design; H.Fl. 10.–, 1975. 79 pp.

Borchert, J.G., G.J. Egbers and M. de Smidt (in Dutch)
- Ruimtelijk Beleid in Nederland; third revised edition, Bussum, Romen, 1978, H.Fl. 36,50.

Borchert, J.G. and J.A. van Ginkel (in German)
- Die Randstad-Holland in der Niederländischen Raumordnung; Kiel, Hirt, 1979 (Reihe: GeoColleg).

Central Bureau for Statistics
- Population of the Netherlands municipalities on 1st January 1979, H.Fl. 9.–; The Hague, State Publishing Company.

Third Report on Physical Planning in the Netherlands
(in Dutch; summaries in English of the parts 1A, 2A and 3A).
- Orientation Report; Part 1E-Text of the report adopted after Parliamentary debate. 1979. H.Fl. 15.50. Order no. 150-042-04.
- Urbanisation Report; Part 2E-Text of the report adopted after Parliamentary debate. 1979. H.Fl. 5.25. Order no. 15-048-06.
- Rural Areas Report; policy proposals with regard to development, planning and management; Part 3A, 1977, H.Fl. 16.50.

Geographical Institute of the State University of Utrecht
- Excursion Guide to the Utrecht Urban Area (forthcoming)

Van Ginkel J.A. (in Dutch)
- Suburbanisation and recent residential environments, parts I and II
  Utrecht Geographical Studies 15/16
  Geographical Institute of the State University of Utrecht, 1979.
  Heidelberglaan 2, PO Box 80.115, 3508 TC Utrecht.

Hall. P.
- The Randstad Holland
  in: The world cities, second ed., London, 1977, pp. 79-104.

IDG/Ministry of Foreign Affairs
- Compact Geography of the Netherlands; 3rd Edition, 1979, 44 pp.
- Pictorial Geography of the Netherlands; 1977, 40 pp.
- Zuyder Zee/Lake IJssel Guide; 1977, 70 pp.
- The South-West Netherlands: Rotterdam-Europort-Delta, 1978, 60 pp.

(obtainable through Netherlands embassies or the IDG in Utrecht).

Lawrence, G.R.P.
- Randstad Holland
  London, Oxford University Press, 1973, £ 1.–.

Ottens, H.F.L. (in Dutch, with a separate summary in English)
- The Green Heart within the Randstad; a picture of suburbanisation in the West Netherlands.
  Asser., Van Gorcum, 1976, 189 pp. H.Fl. 29.50.
  Final report of a research project undertaken by the Geographical Institute of the State University of Utrecht.

Ottens, H.F.L.
- Spatial development in the Greenheart of the Randstad: policies versus theoretical and empirical evidence.
  TESG; 70 (1979) no. 3. pp. 130-143.

Rotterdam, Municipal Port Department
- Statistical Review (annual)
- Rotterdam: Europort/Delta (periodical; quarterly).

Wakefield, V.T.J.
- The perception of Randstad Holland
  TESG; 68 (1977) No. 2. pp. 110-114.

Wijers, L. (in Dutch)
- De Randstad Holland
  The Hague, National Physical Planning Agency, publication 75-2.

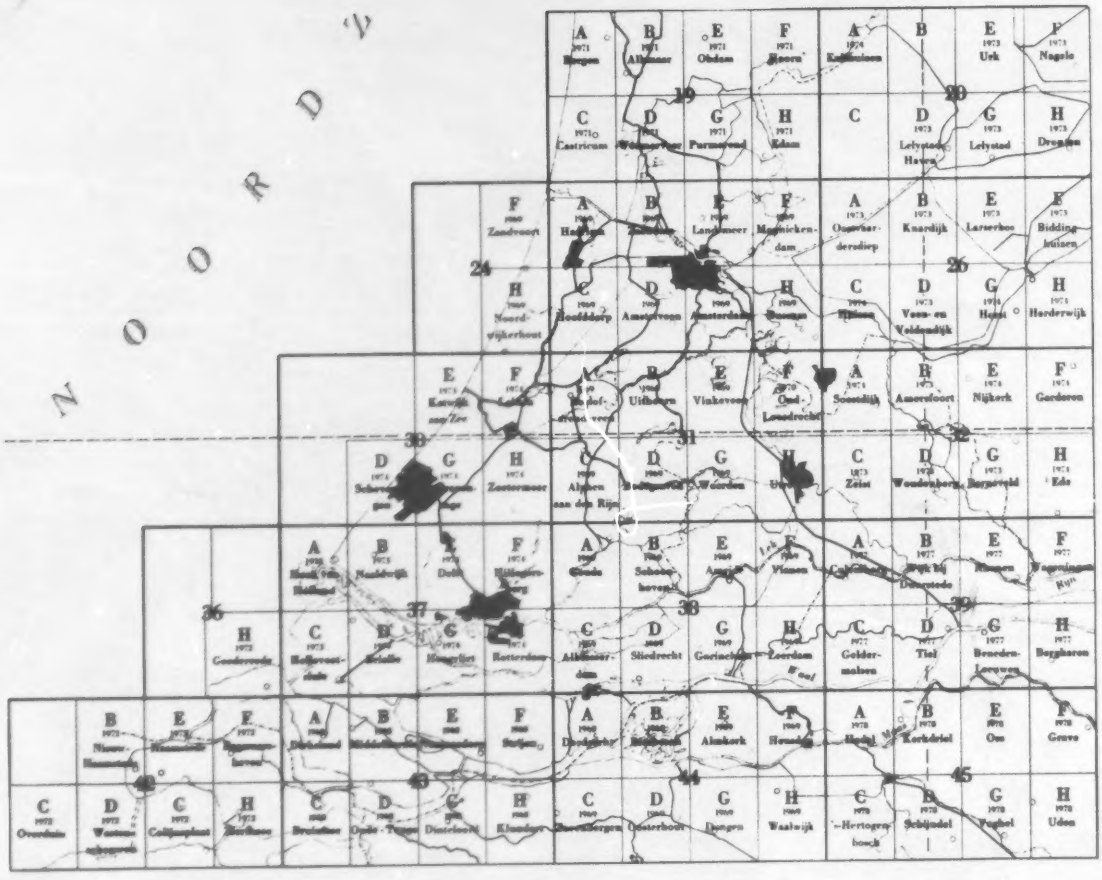

fig. 18. — *Sheet Index to topographical maps of the Randstad Holland and surrounding areas.*

Each lettered block represents one sheet of the 1:25,000 scale map and two sheets of the 1:10,000 scale map (a north and a south sheet). Blocks ABCD and EFGH each form one sheet (east and west) of the 1:50,000 scale map.

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